

Phone 395-6251

*(Will send as Contract for
Negotiated 4/20/76)*

VALLEY DISPOSAL

Div. of Novak Landfill Corp.

Modern Sanitation Experts

P.O.Box RD. 1

RECEIVED

MAR 19 1976

Allentown, Pa. 18102

115380

March 16, 1976

Mr. Bernie O'Leary
G A F Corp.
Whitehall, Pa.

Dear Sir:

I am writing this letter in reference to the trash removal at your plant in Whitehall, Pa.

We are presently operating five trucks and servicing a 50-mile radius of the Lehigh Valley. Our trucks are radio dispatched and drivers are company uniformed. We have been engaged in this type of business for the past 25 years and own our State Licenced Sanitary Landfill and Recycling Center.

Enclosed is our brochure explaining how our complete, thorough and tight-knit operation enables us to reduce disposal costs and pass the savings on to our customers.

At your earliest convenience we would like to visit your plant, view your operation and render a proposal. I am sure our concern can handle your complete refuse situation in the most efficient and economical manner.

If there are any further questions please feel free to contact us. Looking forward to hearing from you in hopes of doing business, I remain

Very Truly Yours

VALLEY DISPOSAL

Louis Novak

Louis Novak Pres.

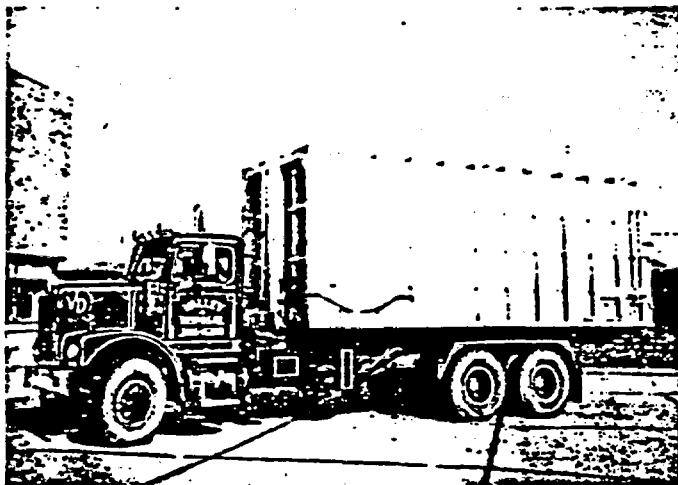
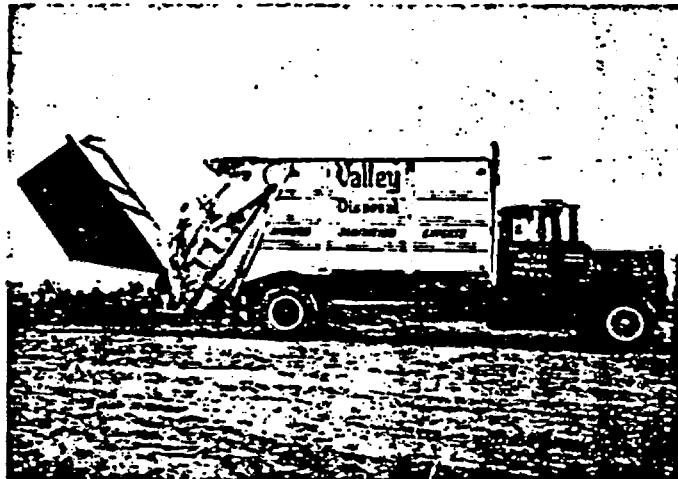
*D. Maass and self
told Mr. Novak all about
their operation.*

LN/sn

Enc.

AR201241

Introduction to
VALLEY DISPOSAL
DIVISION:
NOVAK LANDFILL AND RECYCLING INC.



This brochure is printed to help explain
how NOVAK ENTERPRISES will handle all your
refuse problems in the most efficient and
economical manner with the prime concern in
mind of conserving our country's natural
resources.

201242

Help your country and your company today
call **VALLEY DISPOSAL** for fast, efficient,
and economical service in any of the areas
covered in this brochure.



We will send one of our disposal experts to study
your layout and amount of refuse generated,
suggest the best way to handle the situation and
at the same time give you an estimate of your
monthly outlay.



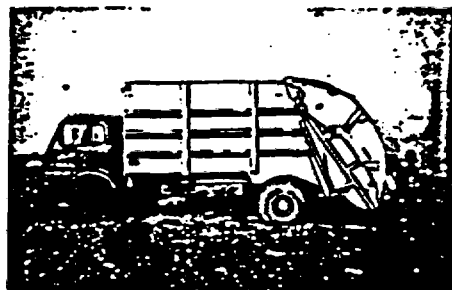
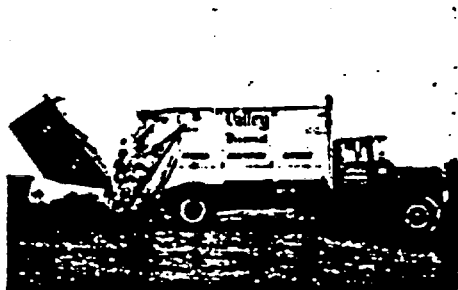
NOVAK ENTERPRISES is constantly seeking
better ways to improve and upgrade its service.
For this reason, this brochure
is subject to change at any time.
Home Office: R.D. 1, Allentown, Pa.
Phone 395-6251

201242a

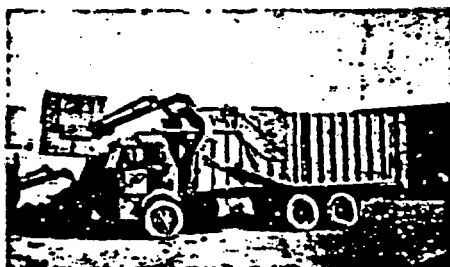
VALLEY DISPOSAL

A company built on service and satisfied customers offers a complete refuse removal service to handle any and all of your needs.

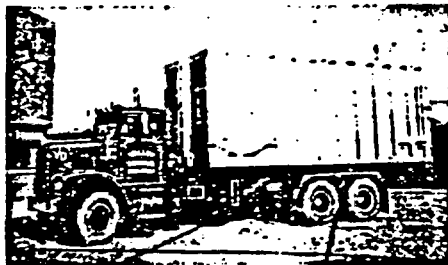
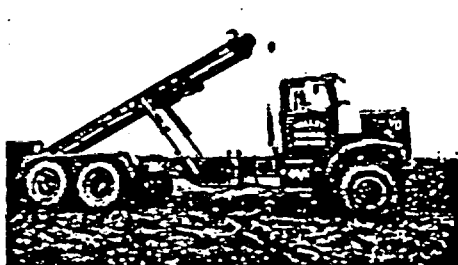
1. Serving a 50 mile radius of the Lehigh Valley
2. Radio dispatched trucks
3. Company uniformed drivers
4. All modern equipment



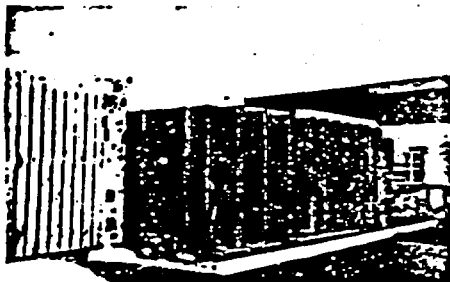
Rear loaders for residential and commercial accounts.



Front end loaders for commercial and light industrial accounts.



Roll-off systems for heavy commercial and industrial accounts.

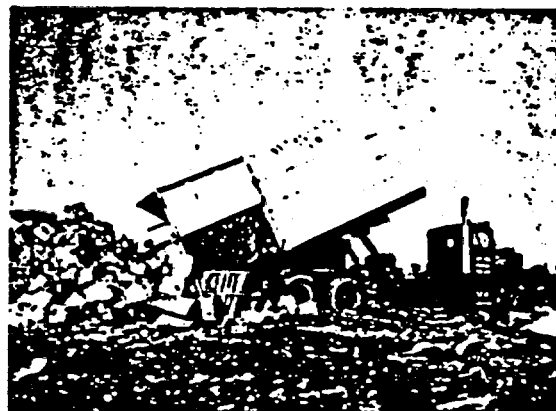


Stationary compactors available for free trial,
with no obligation on company's part.

201243

NOVAK LANDFILL AND RECYCLING INC.

ORIGINAL
(Hand)



1. Refuse is brought to NOVAK STATE APPROVED SANITARY LANDFILL in compactor trucks.

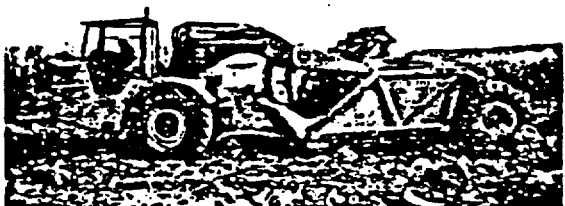


Roll-off compactor for cardboard and paper.



Open roll-off containers for metal, wood, glass, etc.

2. Refuse is sorted into categories — corrugated, waste paper, precious metals, wood, glass, plastics, etc.



201244

3. The remainder non-valuable solid waste is compacted by special landfill equipment and covered by six inches of clean earth daily.
In the future on this site will be built a township recreation area or residential housing.

Phone 393-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.

Modern Sanitation Experts

P.O. Box RD. 1

Allentown, Pa. 18102

April 20 1976

Mr. Bernie O'Leary
GAF Corp.
Whitehall, Pa.

RECEIVED

APR 22 1976

Dear Sir:

PURCHASING

In reference to our conversation Tuesday concerning refuse removal, we would like to render the following proposal.

We would like to supply 42 cu. yd. containers to fit your compactors and service them per your schedules for the fee of \$58.00 per movement, if a second movement in a given day is required the fee would be \$45.00 per movement.

We would like to supply X number of 30 cu. yd. open top containers and service them per your schedules for the fee of \$45.00 per movement.

We would like to supply a 2 cu. yd. container at your warehouse located in the LEHIGH VALLEY INDUSTRIAL PARK and service it once a week for \$24.00 per month.

All refuse will be disposed of at Novak State Licenced Sanitary Landfill and Recycling Center for \$1.00 per cu. yd.

I am sure you will agree this proposal is fitting to your operation both efficiently and economically. Looking forward to hearing from you in the near future in hopes of doing business. I remain

Very Truly Yours

Louis Novak

Louis Novak

LN7sn
Enc.

Valley Disposal
1st Dump \$58.00
2nd Dump \$45.00
open Cont. \$45.00
IND PARK 24.00

1974-REESER Disposal
1st Dump 70.00
2nd Dump 50.00
open Cont. 45.00
IND PARK 50.00 per month

201245

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.

Modern Sanitation Experts

P.O.Box RD. 1

Allentown, Pa. 18102

RECEIVED May 13, 1976

MAY 17 1976

PURCHASING

Mr. John Rawlins
GAF Corp.
1361 Alps Road
Wayne, New Jersey

Dear Sir:

I am writing this letter in reference to the trash removal at your plant in Whitehall, Pa.

We are presently operating five trucks and servicing a 50-mile radius of the Lehigh Valley. Our trucks are radio dispatched and drivers are company uniformed. We have been engaged in this type business for the past 25 years and own our State Licensed Sanitary Landfill and Recycling Center.

Enclosed is our brochure explaining how our complete, thorough and tight-knit operation enables us to reduce disposal costs and pass the savings on to our customers.

We would like to supply 42 cu. yd. containers to fit your compactors and service them per your schedules for the fee of \$50.00 per movement. If a second movement is required the fee would be \$45.00 per movement.

We would like to supply X number of 30 cu. yd. open top containers and service per your schedules for the fee of \$45.00 8 HR MOVEMENT.

We would like to supply a 2 cu. yd. container at your warehouse located in the LEHIGH VALLEY INDUSTRIAL PARK and service it once a week for the fee of \$24.00 per mo.

Refuse will be disposed of at Novak Sanitary Landfill and recycling center for \$1.00 per cu.yd.

I am sure this proposal is fitting to your operation both efficiently and economically. Looking forward to hearing from you in the near future in hopes of doing business, I Remain

201246

Very Truly Yours

Louis Novak
Louis Novak

LN/sn

O'Leary		705-5948	
EXP. DATE	JOB NO.	ACCT. NO.	P.C. NO. MC OR AFE APP.
EXP. DATE	CAPITAL	DELIVERY REQUIRED - DESTINATION	P.O.B. POINT
Dec 18			OUR PLANT
		DATE	
		5/27/76	

GAF Corporation



SHIP TO
GAF CORPORATION
BLDG. MATERIALS GROUP
1139 Lehigh Ave.
Allentown, Pa. 18052

67452
PURCHASE ORDER

VALLEY DISPOSAL
P.O. BOX 801
ALLENTOWN PA. 18102
ATTN: MR. LOUIS NOVAK
PHONE 215-395-6251

INVOICE
 IN TRIPlicate
 TO **WHITEHALL, PA. 18052**

Req. 16791

THIS PURCHASE IS: ☐ Subject to sales tax ☐ For resale-not subject to sales tax ☐ To be used in R & D work-not subject to sales tax
☐ To be used in manufacturing operations - not subject to sales tax.

QUANTITY	CODE	DESCRIPTION	PRICE	AMOUNT
BLANKET ORDER FOR TRASH REMOVAL				
"CONTRACT TO FOLLOW"				
48	CU. YD.	CONTAINERS TO FIT OUR COMPACTOR		50.00 1st load
				45.00 2nd load
30	cu. yd.	containers open top		45.00 per load
2	cu. yd.	container at L.V.I.P.		24.00 month
		REFUSE TO BE DUMPED AT 1.00 per CU. YD. AT NOVAK LAND FILL		1.00 per CU.YD.
INSURANCE PAPER MUST ACCOMPANY ACKNOWLEDGEMENT				

FOR DIRECTOR OF PURCHASING				
ACKNOW.	PROM. DELIVERY	SENT	RETURNED	REPLY

Net 10	SHIP VIA	DELIVERY REQUIRED - DESTINATION	P.O.S. POINT	DATE
			OUR PLANT	5/27/76

GAF Corporation



SHIP TO
GAF CORPORATION
BLDG. MATERIALS GROUP
1139 Lehigh Ave.
Fullerton, Pa. 18052

BY **67452**
PURCHASE ORDER

VALLEY DISPOSAL
P.O. BOX RD1
ALLENTOWN PA. 18102
ATT.: MR. LOUIS NOVAK
PHONE 215-395-6251

RECEIVED

NOV 15 1976

INVOICE
IN TRIPLICATE

SAME:
WHITEHALL, PA. 18052

Req. 16791

THIS PURCHASE IS: ☐ Subject to sales tax ☐ For resale not subject to sales tax ☐ To be used in R & D work-not subject to sales tax
☐ To be used in manufacturing operations not subject to sales tax. See reverse side for tax exemptions

QUANTITY	CODE	DESCRIPTION	PRICE	AMOUNT
----------	------	-------------	-------	--------

BLANKET ORDER FOR TRASH REMOVAL
"CONTRACT TO FOLLOW"

48 CU. YD. CONTAINERS TO FIT OUR COMPACTOR

50.00 1st load
45.00 2nd load

30 cu. yd. containers open top

45.00 per load

2 cu. yd. container at 12.00

24.00 month

REFUSE TO BE DUMPED AT 1.00 per CU. YD. AT
NOVAK LAND FILL

1.00 per CU.YD.

INSURANCE PAPER MUST ACCOMPANY ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

201248

NOTE: IF SHIPMENT MOVES UNDER ITEM 40.000 OF NATE. H. P. C. OR ITEM 33800 OF UNIFORM FREIGHT CLASS, SHOW BILL OF LADING "RELEASED" VALUE NOT EXCEEDING \$64.48.

THIS ORDER IS SUBJECT TO PRINTED TERMS AND CONDITIONS ON REVERSE SIDE.

DIRECT CORRESPONDENCE TO

FOR DIRECTOR OF PURCHASING

ATTENT: EXPLICIT SHIPPING INFORMATION IS REQUIRED, AVOID THE USE OF "AT ONCE" AND "AS SOON AS POSSIBLE."

DATE WILL SHIP

VIA

11/10/76

Truck

SELLER HEREBY ACKNOWLEDGES RECEIPT OF THIS PURCHASE ORDER AND ACCEPTS IT SUBJECT TO THE TERMS AND CONDITIONS PRINTED ON REVERSE SIDE HEREOF.

VENDOR'S AUTHORIZING SIGNATURE

HIS IS AN EXACT COPY OF OUR ORDER PLEASE GIVE SHIPPING INFORMATION IN SPACE PROVIDED & RETURN IMMEDIATELY

GAF Corporation - Purchasing Department
VENDOR'S COPY OF RELEASE

16791

QUANTITY DATE 5/27/76	F.O.B. OWN PLANT.	DISCOUNT Net-10	DAYS	SHIPPING DATE
SUPPLIER Valley Disposal P.O. Box RD 1 Allentown PA 18102. ATT. MR. Louis NOVAK Phone-215-395-6251				BLANKET P. O. NO. B1-64152 DATE ISSUED NOTE: INVOICE IN DUPLICATE MUST SHOW BLANKET ORDER, REQUISITION AND ACCOUNT NUMBERS. COMPLETE ADDRESS, ETC., MUST BE SHOWN ON ALL PAPERS, PACKAGES, ETC. DELIVER TO: DEPT. ATTN.

COUNT NUMBER	QUANTITY	ITEM	PRICE
		Blank Order FOR TRASH Removal. "CONTRACT TO Follow."	
		42 Cu. yd. CONTAINERS TO FIT OUR COMPACTOR.	50. ⁰⁰ - 15 ⁰⁰ per 15 ⁰⁰ 2 ⁰⁰
		30 cu. yd. CONTAINERS open top	15. ⁰⁰ per. box!
		2 cu. yd. container AT K.V.I.P.	424. ⁰⁰ max
		Refuse to be Dumped AT 1. ⁰⁰ per cu yd. AT NOVAK hand fill.	1. ⁰⁰ per cu yd.
		INSURANCE Paper MUST Accompany Acknowledgment.	

REMARKS: THIS RELEASE VOID UNLESS VALIDATED BY "GAF CORPORATION, PURCHASING DEPARTMENT" STAMP
THE REQUIREMENTS OF EXECUTIVE ORDER 10925 ARE INCORPORATED BY REFERENCE.

GAF CORPORATION

FOR DIRECTOR OF PURCHASING

201249

16791

ACCOUNT NUMBER	QUANTITY	ITEM	PRICE
		Truck Blank Order	
		For Truck Removal.	
		"Cont. of Job Follow."	
		42 Cu. yd. Contained to	50.00
		Fill in Compaction	2.00
		20 Cu. yd. Contained to Top	4.00
		20 Cu. yd. Contained to 1/4" Top	2.00
		Truck to be Dropped	
		1 - 1/2 Cu. yd. of	1.00
		Blank Y. of H.	6.00
		INSURANCE Policy Must	
		Acc. Money Refund to P.	

ESTIMATED MONTHLY USAGE	MAXIMUM INVENTORY
ISSUED TO DEPT.	MINIMUM INVENTORY
REQUISITIONED BY <i>[Signature]</i> ON	QUANTITY ON HAND 201250

45

EXPENSE FOR	EXPENSE	CARTON	SHIP VIA	SHIP TO	SHIP TO	SHIP TO	SHIP TO
5/10							

GAF Corporation



VALLEY DISPOSAL
P.O. BOX 801
WHITEHALL, PA. 16158
ATTN: MR. LOUIS MOYER
PHONE 213-595-1151

SHIP TO
GAF CORPORATION
ELEC. MATERIALS GROUP
1139 Lehigh Ave.
Fullerton, Pa. 17032

7109
PURCHASE
ORDER

INVOICE
IN TRIPLICATE
TO
WHITEHALL, PA. 16158

THIS PURCHASE IS: ☐ Subject to sales tax ☐ For resale-not subject to sales tax ☐ To be used in R & D work-not subject to sales tax
☐ To be used in manufacturing operations - not subject to sales tax.

QUANTITY	CODE	DESCRIPTION	PRICE	AMOUNT
BLANKET ORDER				
BLANKET ORDER to cover the removal of trash and refuse materials from our plant here at Whitehall and the Industrial Park Warehouse complex.				
48 Cu. Yd.		Containers to fill our compressor	\$50.00	1st lot
33 Cu. yd.		containers open top	45.00	2nd lot
2 Cu yd.		containers at L.V.I.P.	45.00	per lot
			24.00	forth
REFUSE TO BE DUMPED AT \$1.00 PER CU. YD. AT <u>MOYER LANDFILL</u> .				
VALLEY DISPOSAL BEING A LICENSED STATE LANDFILL, WILL PERFORM IN ACCORDANCE WITH ALL FEDERAL, LOCAL AND STATE AGENCIES IN THE DISPOSAL OF ALL REFUSE AND TRASH FROM OUR TWO LOCATIONS.				
VALLEY DISPOSAL HAS A PERMIT FROM THE STATE OF PENNSYLVANIA DATED XXXIII 5/24/72, NO. 102534, STILL IN EFFECT.				
VALLEY DISPOSAL WILL PICK UP MATERIAL ON A DAILY BASIS AND UPON SPECIAL REQUEST FROM GAF.				
THIS ORDER CANCELS AND SUPERSEDES GAF P.O. EF67452 DATED 5/27/76.				
				201251

DIRECT
CORRESPONDENCE
TO

FOR DIRECTOR OF PURCHASING

IMMEDIATELY UPON SHIPMENT SEND INVOICE IN TRIPLICATE TO ADDRESS INDICATED ABOVE, GIVING OUR ORDER NUMBER. RENDER SEPARATE INVOICE FOR EACH SHIPMENT. PACKING SLIP MUST ACCOMPANY EACH SHIPMENT. QUANTITIES APPEAR ON PACKING SLIP, INVOICES, B I S, SHIPPING LABELS, PACKAGES AND CORRESPONDENCE MUST SHOW OUR ORDER NUMBER.

REQUESTIONER

PERMIT

FOR

SOLID WASTE DISPOSAL AND/OR PROCESSING FACILITY

No. 100534

Under the provisions of Act 241, The Pennsylvania Solid Waste Management Act, a permit for a solid

waste disposal and/or processing facility located at (Municipality) South

Whitehall Township in the county of Lehigh

is granted to (applicant) Louis J. Novak

(address) R. D. #1, Allentown, Pennsylvania

this permit is applicable to the facility named as Novak Sanitary Landfill Inc.

and described as:

Novak Sanitary Landfill Inc.

Latitude 40° 37' 45" N

Longitude 75° 33' 45" W

This permit will expire _____; however, it is

subject to prior revocation or suspension by the Secretary of ~~Health~~ ^{Environmental Resources} or any violation of the law under

which it is issued or for any violation of the rules and regulations authorized thereunder or for non-compliance of any stipulations or limitations listed below.

Phase II of the Groundwater Module must be submitted within sixty (60) days of the date of the permit or seven (7) days in advance of the operation of the site, whichever is sooner.

Two additional monitoring points are required to be provided in sixty (60) days from receipt of this permit:

1. One located at 1.0" north and 8.7" west of the southeast corner of the Cementon 7.5' quadrangle.
2. One located at 0.9" north and 8.2" west of the southeast corner of the Cementon 7.5' quadrangle.

Monitoring point #3 as described on page 12 of the groundwater module phase I, may be deleted.

The maximum permissible depth of trenches is 12 feet. Trenching at depths greater than 12 feet will be considered only if additional detailed borings of the site are submitted to the Department's Soil Scientist and Groundwater Geologist for their review and approval.

3/24/72
DATE ISSUED

William H. Davis
Associate Deputy Secretary for Mines and Land

Protection
THIS PERMIT IS NON-TRANSFERABLE
Department of Environmental Resources

201252

LIABILITY
POLICY

ERIE INSURANCE EXCHANGE BOX 9 • ERIE, PA. 16530

DECLARATIONS -

AGENT'S NAME
AA-8202 T E MICHAEL

MO

ITEM 2 POLICY PERIOD
4-30-76 TO 4-30-79

POLICY NUMBER
BCL A28-30-50003

C.C.
[initials]

ITEM 1 NAME AND ADDRESS OF SUBSCRIBER

VALLEY DISPOSAL, DIVISION OF
NOVACK'S LANDFILL INC. &
NOVACK'S SANITARY LANDFILL INC.
R D 1
ALLENTOWN, PA 18102

Please include above information on
all payments or correspondence.

POLICY PERIOD BEGINS/AND ENDS AT 12:01 A.M. STANDARD TIME
AT THE ADDRESS OF THE SUBSCRIBER AS STATED HEREIN.

☒ CORPORATION ☐ INDIVIDUAL ☐ PARTNERSHIP ☐ JOINT VENTURE

N.O. USE					
CLASS	EXP.	S	BUSN.	PROP.	RE-INS.
3000	012	1	350	---	A- --- B- 350

ITEM 3 THE LIMIT OF THE ERIE'S LIABILITY FOR EACH COVERAGE SHALL BE AS STATED HEREIN, SUBJECT TO ALL THE TERMS OF THIS POLICY
HAVING REFERENCE THERETO. **SANITARY LAND FILL & TRASH REMOVAL**

COVERAGES AND LIMITS	PREMIUM
BUSINESS CATASTROPHE LIABILITY COVERAGE	<input checked="" type="checkbox"/> Annual <input type="checkbox"/> 3 Year Prepaid
Limit of Liability \$ 1,000,000 EACH OCCURRENCE	TOTAL PREMIUM PAYABLE
Aggregate Limit \$1,000,000 WHERE APPLICABLE	\$ 350.00 1st Year
Self-insured Retention \$ 10,000 EACH OCCURRENCE	\$ 350.00 2nd Year
OTHER COVERAGE	\$ 350.00 3rd Year
\$	

ITEM 4

SCHEDULE OF UNDERLYING INSURANCE

Policy Number	Insurer	Limits of Liability	Policy Period	Type or Description
A25-03-00074 R	EIE	300/300M- 100/100M	1-3-76/77	COMPREHENSIVE GENERAL LIAB.
A06-21-00330 R	EIE	250/500M-100M	6-21-75/76	COMPREHENSIVE AUTO LIABILITY
A85-03-00012 R	EIE	100M	1-3-76/77	WORKMEN'S COMP.
CCP9896455	CNA	250/500M-100M	TO BE DETER- MINED	COMPREHENSIVE AUTO LIABILITY

ITEM 5 OTHER FORMS

CAT 11(3-72)
CAT 37(3-72)

201253

ERIE INDEMNITY CO., ATTORNEY-IN-FACT

Authorized Agent

Samuel S. Dimson

(NOT VALID UNLESS SIGNED BY AN AUTHORIZED AGENT OF THE ERIE)

By

H. O. Kirk

President

COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE

SCHEDULE

The insurance afforded is only with respect to such of the following Coverages as are indicated by a specific limit or limits of liability. The limit of the company's liability against each such Coverage shall be as stated herein, subject to all the terms of this policy having reference thereto.

Comprehensive Automobile Liability Insurance	Coverages	Limits of Liability	
		EACH PERSON	EACH OCCURRENCE
	C—Bodily Injury Liability	\$ 100,000	\$ 300,000 <i>500,000</i>
	D—Property Damage Liability	\$ <i>100,000</i>	\$ 100,000
Automobile Medical Payments Insurance	F—Medical Payments	\$	XXXXXX
	U—Uninsured Motorists	\$ 10,000	20,000

COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE

1. Owned Automobiles									
Unit No.	Town or City and State in Which Automobile Will Be Principally Garaged			Year of Model and Trade Name		Body Type & Model; Truck Size; Tank Gallonage or Bus Seating Capacity		Purpose of Use	
	See Attached Schedule								
Unit No.	(M) Motor No. (S) Serial No.	Radius of Operations in Miles	Territory Code	Rate Class	ADVANCE PREMIUM				
					Medical Payments	Uninsured Motorists	Bodily Injury	Property Damage	
	See Attached Schedule					12	588	606	
2. Hired Automobiles									
Locations Where Automobiles Will Be Principally Used		Types of Hire	Purposes of Use	Estimated Cost of Hire	Rates Per \$100				
Allentown, Pa.		PP	P&B	if any	1.026	.802			
		CL 3	Comm	if any	2.053	2.486			
3. Non-Owned Automobiles									
(a) Class 1 Persons—Name of Each		(a) Persons Named			Rates Per Person				
if any		Allentown, Pa.			5.47	2.508	9. MP 1. M		
(b) Class 2—Estimated Average Number		(b) Class 2 Employees			Rates Per Employee				
if any					.233	1.00			
Total Advance Premium						12	597	607	

AUTOMOBILE MEDICAL PAYMENTS INSURANCE

DESIGNATION OF AUTOMOBILES—Division 1	
(1) <input type="checkbox"/> Any owned automobile	(4) <input type="checkbox"/> Any automobile described in the schedule and designated "M.P."
(2) <input type="checkbox"/> Any hired automobile	(5) <input type="checkbox"/> Any non-owned automobile
(3) <input type="checkbox"/> Any licensed owned private passenger automobile	(6) <input type="checkbox"/>
DESIGNATED PERSON INSURED Division 2.	

UNINSURED MOTORISTS INSURANCE

DESIGNATED INSURED:	
Description of Insured Highway Vehicles (Check appropriate box)	
<input type="checkbox"/> Any automobile owned by the named insured	201254
<input type="checkbox"/> Any private passenger automobile owned by the named insured	
<input type="checkbox"/> Any highway vehicle to which are attached dealer's license plates issued to the named insured	
<input type="checkbox"/> Any highway vehicle designated in the schedule of the policy by the letters "UM" and a highway vehicle ownership of which is acquired during the policy period by the named insured as a replacement therefor	
<input type="checkbox"/> Any mobile equipment owned or leased by and registered in the name of the named insured	
<input type="checkbox"/>	

AUTOMOBILE EXTENSION SCHEDULE

☒ **AUTOMOBILE LIABILITY, MEDICAL PAYMENTS and UNINSURED MOTORIST INSURANCE**
☐ **AUTOMOBILE PHYSICAL DAMAGE INSURANCE**

Attachment to Policy No. **CCP 242 97 28**

1. Owned Automobiles or Covered Automobiles

The Schedules of the applicable Coverage Parts are extended to include the following:

Unit No.	Town and State in Which Automobile Will Be Principally Garaged	Year of Model and Trade Name	Body Type & Model; Truck Load Capacity; Tank Gallonage or Bus Seating Capacity	(M) Motor No. or (S) Serial No.	Radius of Operations in Miles	Terr. Code	O or L	alt. class
1	Allentown, Pa.	65 Int'l.		C0202A0F048668G		58		3CB
2	"	70 Mack		C20917777		58		3CB
3	"	74 Diamond	Mdl. C9264D Reo	DRG64HC604497		58		3CB
4	"	74 Mack	Mdl. DM68523183	SN23183		58		

Complete For Physical Damage Coverage Only						ADVANCE PREMIUMS						
Unit No.	Month & Year Purchased	N or U	Rating Sym. or Original Cost New Incl. Equip.	*Amount of Insurance (A.C.V. or Stated Value)	Amount of Collision Deductible	Comprehensive	Collision †	CAC F & T	Medical Payments	Uninsured Motorists	Bodily Injury	Pay 1
1			2000					8		4	196	20%
2			10,000					39		4	196	20%
3			40,000	40,000	500		240	156		4	196	20%
4			42,000	ACV		261						
Total Advance Premium						261	240	203		12	588	6

When towing coverage is provided, the limit of liability is \$25 each disablement.

*Unless otherwise stated in each entry the Amount of Insurance is "Actual Cash Value."

†The amount of insurance for Collision is always "Actual Cash Value" less the indicated deductible.

Purposes for which the above described units are to be used are "Pleasure and Business" for Private Passenger and "Commercial" for Commercial or Tri

ORIGINAL
(Red)

March 30, 1977

RECEIVED

MAR 31 1977

PURCHASING

VALLEY DISPOSAL
Division of Novak Landfill
R.D. #1
Allentown, Pennsylvania 18103

Attention: Mr. Louis Novak

SUBJ: WASTE DISPOSAL - WHITEHALL

Dear Mr. Novak:

I have attached an executed contract for the above referenced service for the period of February 23, 1977, through February 23, 1978.

We appreciate the fine service you have given us during the past several months, and we look forward to a continued and mutually pleasurable association.

Very truly yours,

CORPORATE PURCHASING

John A. Rawlins
Supervising Buyer

JAR/vs
Attachment

bcc: Messrs. B.J. Jast
B.J. O'Leary
W.R. Page
V.L. Ujcic

201256

SERVICE AGREEMENT

ORIGINAL
(Rev)

SERVICE AGREEMENT, made this 23rd day of February, 1977, between
GAF CORPORATION, a Delaware corporation, with offices at 140 West 51st
Street, New York, New York, ("Company") and VALLEY DISPOSAL, DIVISION OF
NOVAK LANDFILL CORPORATION, a Pennsylvania corporation, with offices at
RD #1, Allentown, Pennsylvania, ("Contractor").

R E C I T A L S

The Company desires to have Contractor haul and dispose of PVC
scrap, asbestos trimmings, scrap bags and other industrial waste ("Waste")
which may result from the Company's operations located at Whitehall,
Pennsylvania ("Plant").

The Contractor desires to haul the Waste from the Plant and dispose
of it at its Novak Sanitary Landfill ("Facility").

The parties agree:

1. REMOVAL AND DISPOSAL OF WASTE

1.1 Removal. The Company shall deposit the Waste into stationary
packer equipment owned by the Company and into 30 cubic yard open-top containers
and 2 cubic yard containers owned by the Contractor (the number of units and
locations to be designated by the Company). Contractor shall be permitted to
enter the Plant in order to remove and load the Waste into Contractor's trucks
for transport to Contractor's Facility.

1.2 Ownership. The Company shall sell and the Contractor shall buy
all Waste removed from the Plant. Risk of loss, and title to, the Waste shall
pass to Contractor upon delivery of the Waste to the tank trucks or other
vehicles supplied by Contractor to transport the Waste.

2. INVOICE-PAYMENT

Within 10 days after receipt of Contractor's invoice, Company shall pay the hauling and disposal rates listed on Exhibit A attached hereto and made a part hereof. Contractor shall invoice Company monthly.

3. TERM

This Agreement shall be for a term of one year, commencing on February 23, 1977, and ending on February 23, 1978 . At the expiration of the initial term or any renewal thereof, Company shall have the right to extend this Agreement for an additional one-year term by giving written notice to Contractor thirty days prior to the expiration of the initial term or any extension thereof.

4. WARRANTY - CONTRACTOR

Contractor shall comply with all existing and future laws, ordinances, orders and regulations of the United States and of any state, county, township or municipal subdivision thereof, or any other governmental agency which may regulate the loading and removal of Waste from the Plant, or the subsequent disposal of the Waste. Contractor warrants that it shall obtain all permits, licenses and any other documentation required to comply with such laws, ordinances, orders and regulations and to furnish copies of the same to Company upon request. In the event any of Contractor's licenses or permits are revoked or suspended, Contractor shall notify GAF within twenty-four hours of the revocation or suspension.

5. INDEMNIFICATION - CONTRACTOR

Upon delivery of the Waste to Contractor's tank trucks or vehicles, Contractor shall be solely liable for any and all loss, damage, or injury to persons or property and Contractor shall indemnify and hold Company harmless from any and all liability, causes of actions, damages, costs, claims, demands,

ORIGINAL

and expenses of whatever type or nature, including, but not limited to, pollution or the negligence of Contractor, its sub-contractors, agents or employees, arising out of, or connected with the acceptance, transportation or processing of the Waste.

ORIGINAL
(R&S)

6. TRANSPORTATION

6.1 Trailers. Contractor shall provide suitable transportation to remove the Waste. Contractor, its sub-contractors, agents or employees, shall comply with Company's Purchase Order Supplemental Terms, Indemnification And Insurance Agreement And General Conditions, a copy of which is attached hereto as Exhibit B and made a part hereof.

6.2 Roadways. Company shall provide satisfactory roadways or approaches to the point of loading. Delivery of Waste shall be between the hours of 5:00 a.m. and 5:00 p.m. Monday through Saturday, except Sundays and holidays as scheduled by Company. Contractor shall collect any Waste along the road which falls from its trucks.

7. MAINTENANCE

Contractor shall provide routine maintenance of Company's compactor including, but not limited to, oil, grease, minor welding, and repairs. Payment of the price for any major repairs required to the compactor shall be negotiated between Contractor and Company.

8. DEFAULT

8.1 Liquidated Damages. Pickup and box replacement time shall be established by the Company. For each hour delay after the established replacement time, Contractor shall pay to Company \$9.00 per hour, as liquidated damages, provided, however, that the liquidated damages shall not exceed \$50.00 per day.

8.2 Suspension of Performance. If Contractor shall be in default of

any provision of this Agreement, the Company may at its sole election terminate this Agreement or suspend performance hereunder until the delinquency or default shall be corrected, provided, however, that a suspension shall not be effective until or unless Contractor has not remedied the default within 15 days after receipt of notice of default from Company.

ORIGINAL
(Red)

9. INSURANCE

Contractor. Contractor shall comply with the insurance provision contained in Exhibit B attached hereto and made a part hereof and Contractor shall maintain and provide duplicate certificates to the Company indicating the following insurance coverage:

a. Workmen's Compensation with statutory limits covering all of Contractor's employees working under this Agreement.

b. Automobile & General Liability Insurance providing a limit of not less than \$500,000 Combined Single Limit Bodily Injury and Property Damage.

This Certification shall have the following endorsement:

"These policies are not subject to cancellation or change until ten (10) days after GAF CORPORATION has written notice thereof as evidenced by return receipt of certified letter addressed to:

GAF CORPORATION
1139 Lehigh Avenue
Whitehall, Pennsylvania 18052
Attention: Plant Buyer

10. ASSIGNMENT

Contractor shall not sell, transfer, convey, sublet or assign the Facility without the Company's prior written consent.

Neither party shall assign, sublet, transfer or convey this Agreement or any monies due or to become due to it hereunder without the prior written consent of Contractor or the Company as the case may be.

201260

11. LAW

This Agreement shall be governed by the internal laws of the State of New York.

ORIGINAL
(Red)

12. NOTICES

Any notices required or permitted by this Agreement shall be in writing and/or by telephone. If by telephone, the notice shall be confirmed in writing within 3 days to:

CONTRACTOR: VALLEY DISPOSAL
Division of Novak Landfill Corp.
RD #1
Allentown, Pennsylvania 18103

COMPANY: GAF CORPORATION
1139 Lehigh Avenue
Whitehall, Pennsylvania 18052
Attention: Plant Buyer

IN WITNESS WHEREOF, Contractor and Company have executed this Agreement by its duly authorized representative as of the day and year first above written.

VALLEY DISPOSAL

Attest:

Sylvia Novak

By:

James Novak

GAF CORPORATION

Attest:

William J. L...

By:

William J. L...

ORIGINAL
(Red)

48 cu. yd. container

First move between 5:00
a.m. and 5:00 p.m. in
any 24 hour period

\$50.00/movement

All additional moves
in the same time period

\$45.00/movement

30 cu. yd. open top container

\$45.00/movement

2 cu. yd. containers

\$24.00/month

Dumping Fee

\$ 1.00/cu. yd.

EXHIBIT A

201362

GAF
Corporation1381 Alps Road
Wayne, N. J. 07470OF
(Red)
FAL**PURCHASE ORDER SUPPLEMENTAL TERMS,
INDEMNIFICATION AND INSURANCE AGREEMENT
AND GENERAL CONDITIONS**

In consideration of the contract from GAF Corporation dated February 23, 1977. **
~~Purchase Order~~ the Contractor agrees to the terms and conditions
 stated herein.

AGREEMENT OF INDEMNIFICATION AND INSURANCE

1. To indemnify GAF Corporation and save it harmless from any loss, damage, fines, penalties or liability it may suffer or be about to suffer by virtue of any accident or injury to persons or damage to or destruction of property resulting from or connected with the performance of the contract, or for any violations of safety and/or health laws, rules or regulations, Local, State and Federal, or the negligence of the contractor or any of his employees, agents or sub-contractors or incurred by the contractor or any of his employees, agents or subcontractors while on the premises of GAF Corporation.
2. Before commencing work a Certificate in duplicate evidencing the following insurance shall be presented to the plant where the work is to be performed:
 - a. Workmen's Compensation with statutory limits covering all Contractors' employees engaged in work under the contract.
 - b. Automobile & General Liability Insurance providing a limit of not less than \$ See Article 9 for bodily injuries to any one person and not less than \$ _____ for bodily injuries on account of any one accident and not less than \$ _____ for any damage to property on account of any one accident.

Said Certificate shall have the following endorsement:

"These policies are not subject to cancellation or change until ten (10) days after GAF Corporation has written notice thereof as evidenced by return receipt of certified letter addressed to:

3. In the event any of the work under the contract is subcontracted similar evidence of insurance shall be provided by each subcontractor.
4. During the performance of this contract, GAF Corporation shall provide for and on behalf of GAF Corporation, Contractor and Contractor's sub-contractors, as their respective interests may appear, Standard Fire and Supplemental Perils Insurance, covering the work under construction, including all materials, equipment, and supplies used in connection therewith while located at the job site.

201263

GENERAL CONDITIONS

1. All work shall be in accordance with such parts of the specifications and drawings which are relevant to the work hereunder. Such specifications and drawings are annexed and made a part hereof. The Contractor shall supply his supervisor or foreman with all necessary drawings and specifications prior to the beginning of the work.
2. All material and equipment furnished shall be first class, first quality and new unless otherwise specified.
3. For a period of one year after acceptance of the job, Contractor will, at its own expense, replace or repair, any work, equipment, or materials which prove defective because of defective workmanship or defective materials.
4. Contractor shall obtain all necessary permits, licenses, authorizations to comply with all laws, regulations, and ordinances of Local, State and Federal authorities having jurisdiction except those that the GAF Corporation has stated that it will obtain.
5. Before issuance of final payment Contractor shall furnish to Owner a release of liens or attachments and of all claims including claims for materials or work. Before final payment is made to any subcontractor, Contractor shall obtain from such subcontractor a complete release of liens or attachments and of all claims including claims for materials or work. Such releases from subcontractors shall run to Contractor and Owner and shall be in duplicate originals, one of which shall be delivered to Owner. If any subcontractor shall refuse to furnish such a release, contractor may deliver in lieu thereof a bond satisfactory to Owner indemnifying Owner against any lien, attachment or claim of such subcontractor and all expenses involved in any action or proceeding to remove any lien or attachment or in defending against any claim.
6. No waiver, modification, change, or alteration of the contract shall be valid, nor any claim by Contractor for extras for work, labor, equipment, material, services, or any claim for increase in price shall be effective, unless based on a written authorization signed by a duly authorized representative of GAF.
7. The Contractor, on all time and material jobs, shall submit daily time, material, and equipment sheets to the designated Department.
8. Contractor supervisor shall report to designated Department before starting any job, so a GAF supervisor can inspect the area of the work with the contractors' supervisor and review the work specifications required at the job site.
9. Contractor's equipment and materials shall be stored where and as designated by GAF and the contractor and his subcontractors shall be solely responsible for any loss or damage to construction equipment or tools of contractor or subcontractors and their employees, except as specified under paragraph 4 of the "Agreement of Indemnification and Insurance".
10. Contractors' principal supervisory personnel may not be removed by Contractor without GAF's prior approval.
11. Only with GAF approval, may contractor subcontract any part or parts of the work to be performed. Contractor shall, as soon as practical after the execution of this contract, advise GAF in writing of the names of subcontractors proposed for parts of the work and shall not employ any that GAF may within a reasonable time object to as unsuitable. Contractor agrees that it

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201264

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(Red)

is as fully responsible to GAF for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them as it is for the acts and omissions of persons directly employed by it. Nothing contained in this contract shall create any contractual relation between any subcontractor and GAF. Contractor shall not be deemed the agent of GAF nor shall it represent itself as the agent of GAF for any purpose whatsoever: the Contractor being an independent contractor.

12. Contractors' employees shall confine themselves to the designated area of work, and shall use only the toilet, washroom facilities and cafeterias arranged with the GAF representative. Travel to and from the work area shall be along the most direct route between the plant entrance and the work area, or by other route as directed by the owner.
13. Cameras are not permitted in the plant unless special permission is obtained.
14. Firearms are not permitted in the plant.
15. Intoxicants and illegal drugs are not permitted in the plant.
16. Smoking will be permitted only in specifically designated and posted areas.
17. GAF reserves the right to require the Contractor to have any of its employees whose work or conduct is deemed by GAF to be unsatisfactory leave the premises immediately.
18. Contractor is to conform to all local, State, and Federal safety and health requirements and the specific requirements of the individual plants.
19. Contractor shall furnish such protection, shoring, or other safeguards as are necessary to insure the safety of GAF personnel and premises unless specifically specified otherwise in writing.
20. Contractor is to supply its workmen with any required personal protective equipment.
21. The Contractor shall sign and return the acknowledgment copy of order to the Purchasing Department prior to start of work.

GAF Corporation
Floor Products Division
1139 Lehigh Ave.
Whitehall, Pennsylvania 18052
Telephone (215) 264-0591



ORIGINAL
(Red)

July 30, 1976

TO WHOM IT MAY CONCERN:

This is to confirm that Valley Disposal is now under contract at GAF for Scrap Removal since June 1, 1976.

We have found in this short period of time, his service to be quite adequate and at a fair price.

Cordially,
GAF CORPORATION
BUILDING MATERIALS GROUP

B. J. O'Leary
PURCHASING AGENT

md

201266

GAF Corporation

Building Materials Group
1139 Lehigh Ave.
Whitehall, Pennsylvania 18052
Telephone (215) 264-0591

ORIGINAL
(Red)

October 18, 1977

Mr. Louis Novak
Valley Disposal
P. O. Box R. D. #1
Allentown, Pa. 18102

Dear Mr. Novak:

Mr. B. J. O'Leary asked me to confirm to you that this plant does not dump any trichloro ethylene (TCE) into your land fill. We do not use TCE in this plant, consequently, we do not dump any either.

I hope that this will help you. If you have any further questions, please contact me.

Very truly yours,

GAF CORPORATION
BUILDING MATERIALS GROUP

Ulrich W. Kempf
Ulrich W. Kempf
Plant Technical Manager

UWK:cav

cc: Messrs: Gunchin - GAF
 O'Leary "
 Tierno "
 Ujcic "

201267

Phone 295-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

1-1 19 77

GAF Corp. Bldg. Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal Month of Dec.
PO No. BF-67452

43 Compactor Loads @ \$50.00	= \$2150.00
47 Open Top Loads @ \$45.00	= \$2115.00
3438 yds. dumped at Novaks State	= \$3438.00
Licensed Landfill @ \$1.00 per yd.	
lmo. service at Warehouse Ind. Pk.	\$ 24.00

Total \$7727.00

201268

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Recd)

1-1 19 77

GAF Corporation
Bldg. Materials Group
1139 Lehigh Ave.
Fullerton, Pa. 18052

Refuse Removal Month of Jan.

39 compactor loads @ \$50.00 = \$1950.00

49 open-top loads @ \$45.00 = \$2205.00

3374 yds, dumped at Novak

State Licensed Sanitary Landfill

\$3374.00

Warehouse Ind. Park

\$ 24.00

Total \$7553.00

P.O. #BF-70087

201269

ORIGINAL
(Red)

Phone 395-5251

VALLEY DISPOSAL

Div. of Kovak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

3-1 19 777

GAF Corp.
Bldg. Materials Group
1139 Lehigh Ave.
Allentown, Pa. 18052

Refuse Removal Month of Feb.

40-Compactor loads @ \$50.00	-	\$2000.00
52-Open-Top loads @ \$45.00	-	\$2340.00
3467 yds. Dumped at Kovaks State Licensed Sanitary Landfill at \$1.00 per cu. yd.	-	\$3467.00
1-mo. service at Warehouse Industrial Park #2	-	\$ 24.00
Total		<u>\$7831.00</u>

PO No. EP-70087

201270

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

4-1 19 77

GAF Corp.
Bldg. Materials Group
1139 Lehigh Ave.
Fullerton, Pa. 18052

Refuse Removal Month of March

53 Compactor loads @ \$50.00	\$2650.00
44 Open Top loads @ \$45.00	\$1980.00
3753 yds. dumped at Novaks State Licensed Sanitary Landfill @ \$1.00	\$3753.00
1 mo. service at Ind. park Warehouse 2 containers @ \$24.00 per container	\$ 48.00
Total	\$8431.00

P.O. No. BF-70087

201271

ORIGINAL
(Red)

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

5-1 19 77

GAF Corp,
~~Buildings Materials Group~~
1139 Lehigh Ave.
Fullerton, Pa. 18052

Refuse Removal Month of April

45 Compactor loads @ \$50.00 -	\$2250.00
42 Open Top loads @ \$45.00 -	\$1890.00
3,374 yds. dumped at Novaks State licensed Sanitary Landfill @ \$1.00 per cu. yd. -	\$3374.00
1 mo. service at warehouse Ind. park 2 2 cont. @ \$24.00 each	48.00
Total	<u>\$7562.00</u>

P.O. # PF-70067

201272

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

6-1

19 77

GAF Corp.
Buildings Materials Group
1139 Lenigh Ave.
Fullerton, Pa.

Refuse Removal Month of May

44 Compactor Loads @ \$50.00	=	\$2200.00
45 Open Top Loads @ \$45.00	=	\$2025.00
3377 yds. dumped at Novaks State Licensed Sanitary Landfill @ \$1.00 per cu. yd.	=	\$3377.00
1 mo. service at warehouse Ind.		
Park 2 cont.-\$24.00 each		48.00
Total		\$7650.00

P.O. No. BF-70087

201273

ORIGINAL
(Red)

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

7-19 77

GAF Corp.

Buildings Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal Month of June

47 Compactor loads @ \$50.00 =	\$2350.00
58 Open Top loads @ \$45.00 =	\$2610.00
3384 yds. dumped at Novaks State Licensed Sanitary Sanitary Landfill @ \$1.00 =	\$3884.00
1 mo. service at warehouse Ind. Mark 2 cont. @ \$24.00 each	\$ 48.00

Total \$8892.00

P.O. No, BF-70087

201274

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

8-1 19 77

GAF Corp.
~~Sldg. Materials Group~~
1139 Lehigh Ave.
Fullerton, Pa.

Refuse Removal Month of July

25-comp. loads @ \$50.00	\$1250.00
32 Open Top Loads @ \$45.00	\$1440.00
2143 cu. yds. dumped at Novaks	
State Licensed Sanitary Landfill	\$2143.00
1 mo. service at Warehouse in Ind.	
Park No. 2 \$24.00 per cont.	\$ 24.00
Total	\$4881.00

P.O. No. BF-70087

201275

Phone 395 6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

9-1 1977

GAF Corp.
Bldg. Materials Group
1139 Lehigh Ave.
Fullerton, Pa. 18052

Refuse Removal Month of Aug.

49- Compactor Loads @ \$50.00 =	\$2450.00
54- Open Top Loads @ \$45.00 =	\$2430.00
3935 yds. dumped at Novaks State Licensed Sanitary Landfill @	
\$1.00 per cu. yd.	\$3935.00
1mo. service at ind. park warehouse at \$24.00 per cont. per mo.	\$ 48.00
Total	\$8863.00

P.O. No. SF-70087

ORIGINAL
(1 of 1)

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VALLEY DISPOSAL

Div. of Naval Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

10-1 19 77

GAP Corp.

Blkg. Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal Month of Sept.

45 compactor loads @ \$50.00	=	\$2250.00
42 open top loads @ \$45.00	=	\$1890.00
3381 yds. dumped at Kovaks State Licensed Sanitary Landfill at @ \$1.00	=	\$3381.00
1 mo. service at Ind. park		
2 cont. @ \$24.00 per cont.	=	\$ 48.00

Total ~~\$7569.00~~
\$7569.00

P.O. No. SF-70087

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ORIGINAL
(Red)

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

11/1 19 77

GAF Corp.

Bldg. Materials Group

1139 Benign Ave.

Fullerton, Pa. 18052

PO-DF-70037

45 compactor loads @ \$50.00 ea. --- \$2250.00

50 compactor loads @ \$45.00 ea. --- 2250.00

3672 yds. dumped at Novak's State
licensed Sanitary Landfill

..... \$1.00 ea. ----- 3672.00

..... 1 month service at warehouse in
Industrial Park

..... 2 containers @ \$24.00 ea. -- 48.00

..... Total Amt Due ----- \$3220.00

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ORIGINAL
(Red)

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

12/1 1977

CAF Corp.

Bldg. Materials Group

1122 Lehigh Avenue

Fullerton, Penna. 18052

ACCT. # BF-70037

43 Compactor loads @ \$50.00 ea. ----- \$2150.00

45 open top loads @ \$45.00 ea. ----- 2025.00

3,416 yds. dumped at Novak's State Approved
& Licensed Sanitary Landfill @ \$1.00 per yd.

-----3416.00

1 month service at warehouse in:
Industrial Park

2 containers @ \$24.00 ea. --- 48.00

Total Amt Due ----- \$7639.00

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VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

ORIGINAL
(Red)

1/2 1978

GAR Corp.

Bldg. Materials Group

1132 Lehigh Avenue

Allentown, Penna. 18052

P. O. # BF-70087

42 Compactor loads @ \$50.00 ea. ----- 2100.00

46 Open-top loads @ \$45.00 ea. ----- 2070.00

3434 yds. dumped at Novak's State Approved
Sanitary Landfill @ \$1.00 ----- 3434.00

1 month service @ Warehouse Ind. Park

@ \$24.00 per container per month -- 48.00

Total Amt Due ---\$7652.00

201280

Phone 295-6251

ORIGINAL
(Red)

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

2/1

19 73

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

For No: SF-70087

43 Compactor loads @ \$50.00 ea. -----	\$2150.00
41 open-top loads @ \$45.00 ea. -----	1845.00
3274 yds. dumped at Novak State	
Licensed Sanitary Landfill @1.00 per	
cu. yd. -----	3274.00
1 month service at warehouse, Ind.	48.00
Park II @ \$24.00 per cont. -----	24.00

Total Amount Due ----- \$7317.00

201281

Phone 385-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

3/1

19 73

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

Accounts Payable

P. O. No. BF-70037

40 compactor loads @ \$50.00 ea. ---- \$2000.00

40 open-top loads @ \$45.00 ea. ---- 1800.00

3177 yds. dumped at Novak State Licensed
Sanitary Landfill @ \$1.00 ea. --- 3177.00

1 month service & warehouse in Ind. Park
@ \$25.00 per container per mo. -- 50.00

Amount Due ---- \$7027.00

ORIGINAL
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201282

Phone 335-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

4/1 19 78

Gar Corp.

Bldg. Materials Group

1139 Lehigh Ave.

Allentown, Penna. 18052

P.O. NO. ---- SF-70087

39 open-top loads @ \$45.00 ----- \$1755.00

47 compactor loads @ \$50.00 ea. ----- 2350.00

3,544 yds. dumped at Novak's state
licensed landfill @ \$1.00 ea. - 3544.00

1 month service at Industrial Park

@ \$24.00 per container ----- 48.00

Amount Due ----- \$7697.00

201283

Phone 395 6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18102

5/1

19 73

Mr. [unclear]
Bldg. Materials Group
1130 High Avenue
Allentown, Penna. 18052

Ac. No. ---	70087	
43 compactor loads	\$50.00 ea. ----	\$2150
57 open-top loads	\$45.00 ea. -----	2565
4,005 yds. dumped at Novak's		
State Licensed Sanitary Landfill		
\$1.00 per cu. yd. -----		4085
1 month service at warehouse-Ind. Park		
at \$24.00 per cont. -----		43
Total Amt Due ----		\$6843

201284

ORIGINAL
(Red)

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

6-1 1978

GAP Corp.
Bldg. Materials Group
1130 Lehigh Ave.
Fullerton, Pa.

P.O. No. EF-70067	
47 comp. loads - \$50.00 ea.	\$2350.00
54 open top loads - \$45.00	\$2430.00
4076 yds. dumped at Novaks State Licensed Landfill - \$1.00 ea.	\$4076.00
1 mo. service service at warehouse in ind. Park II \$24.00 per container per ro.	48.00
Total	\$8906.00

201285

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

7/1

1978

GAR Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

P. O. No. ----	BF-70087	
55 open-top loads @	\$45.00 ea. ----	\$2475.00
47 compactor loads @	\$50.00 ea. ----	2350.00
4,201 yds. dumped at Novak's State licensed Sanitary Landfill		
\$1.00 per cu. yd. ----		4201.00
1 month service at Ind. Park @	\$24.00	
per container per month ----		48.00
Total Amt Due ----		\$9074.00

201286

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

8/1 19 73

GAS Corp.

Materials Group

1139 Lehigh Avenue

Allentown, Penna. 18052

P. O. No. --- 7-70007		
45 Compactor Loads	50.00 ea. ----	2250.00
61 Open-top Loads	45.00 ea. ---	2745.00
4440 yds. dumped at Novak's State		
Licensed Sanitary Landfill		1.00
per cu. yd. -----		4440.00
1 month service at warehouse in		
Industrial Park \$24.00 per container		
per month -----		48.00

Total Amount Due----- \$9483.00

AR201287

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

2/1 1978

Novak Corp.
Sleg. Materials Group
1130 Lehigh Avenue
Fullerton, Penna. 18052

P. O. No. --- LP-70087

27 compactor loads \$50.00 ea. ----- \$1350.00

33 open-top loads \$45.00 ea. ----- 1485.00

2,554 yds. dumped Novak's State Licensed
Sanitary Landfill - \$1.00 ea. ----- 2474.00

1 month service - warehouse in Industrial
Park #2, \$24.00 per container per mo. ----- 48.00

2 special 35 yd. roll-off loads from warehouse
in Industrial Park #2 - \$80.00 ea. ----- 160.00

Total Amt Due ----- \$5517.00

201288

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

Oct. 1 19 78

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Allentown, Penna. 18052

A. C. No. --- LF - 70087

46 Compactor loads	@ \$50.00 ea.---	2300.00
60 open-top loads	@ \$45.00 ea.---	2700.00
4,410 yds. dumped at Novak's State licensed Landfill	@ \$1.00 per cu. yd.---	4410.00

1 month service at warehouse at Industrial Park #2	@ \$24.00 per container per month-----	48.00
-------------------------------------------------------	-------------------------------------------	-------

Total Amt Due \$9458.00

201289

VALLEY DISPOSAL

Div. of Nevak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

11/1 19 73

GAF Corp.

Ed. Materials Group

1132 Lehigh Avenue

Allentown, Penna. 18052

ORIGINAL
(Recd)

U. I. o. ----- 70067

53. Inceptor loads : 50.00 ea. ----- 2500.00

67. Men-top loads : 45.00 ea. ----- 3015.00

4. 74 yds. Dumped : Nevak's State

Enclosed Sanitary Landfill 1.00 ea. ----- 4974.00

1 Month service Ind. Park Warehouse

24.00 per cent. per month ----- 48.00

1 Special 15 yd. pool-off load from

Ind. Warehouse 100.00 ----- 10.00

Ant Due ----- 10,517.00

201290

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

1971 1972

Val Corp.

Adm. Materials Group

1138 Lehigh Avenue

Allentown, Penna. 18052

Acct. No. ----- 70027

House Removal for Nov. 1973

44 Compactor loads @ \$50.00 ea. -----	2200.00
68 open-top loads @ \$45.00 ea. -----	3060.00
4,678 yds. humped at Novak's State Licensed Sanitary Landfill @ \$1.00 ea. --	4678.00
1 month service at warehouse Ind. Park @ \$43.00 per container per month-	43.00

Total Amt Due----- 9986.00

201291

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

1/1 19 72

GAF Corp.

Wldg. Materials Group

1139 Eschbach Avenue

Fullerton, Penna. 17061

Refuse Removal for Dec. 1972

2. C. No. ---- LP 70027	
open-top loads \$45.00 ea. -----	3 40.00
Compactor loads \$50.00 ea. -----	2200.00
227 yds. dumped at Novaks State Licensed Sanitary Landfill at \$1.00 per cu. yd.	4227.00
One month's service at warehouse Ind. Park II \$24.00 per cent. per month -----	43.00

Total Amount Due --- 2815.00

201292.

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

Allentown, Pa. 18104

Fullerton, Penna. 18052

ORIGINAL
(red)

201293

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

3/1

19 79

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Allentown, Penna. 18052

P. O. No. ---- BF 70087

41 Comp. loads @ \$50.00 ea. ----- \$2050.00

67 open-top loads @ \$45.00 ea. ----- 3015.00

4,586 yds. dumped at Novaks' State

Licensed Sanitary landfill @ \$1.00 ea.

----- 4586.00

3 mo. service at warehouse in Ind. Park

No. 2 at \$24.00 per container per mo.

----- 48.00

Total Amt Due-- \$9699.00

201294

Phone 395-6251

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

7/1 19 79

GAT Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

P. O. No. ----- BF 70087

42 Compactor loads @ \$50.00 ea. ----- \$2100.00

65 open-top loads @ \$45.00 ea. ----- 2925.00

4,413 yds. dumped at Novak's State

Licensed Sanitary Landfill @ \$1.00 ea. - 4413.00

1 month service at warehouse in industrial

park No. 2 at \$24.00 per container per

month ----- 48.00

Amt Due --- \$9486.00

201295

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

8/1 19 79

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fuflerton, Penna. 18052

ORIGINAL
(Red)

T. O. No. ---BF 70087
Refuse Removal for July 1979

45 open top loads @ \$45.00 ea. -----	\$2205.00
39 Compactor loads @ \$50.00 ea. -----	1750.00
3,533 yds. dumped at Novak's State approved & licensed Sanitary landfill---	3533.00
1 mo. service at ind. Park warehouse	
@ \$26.00 per container per mo. -----	48.00

Total Amt Due-\$7536.00

201296

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

9/1 19 79

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

ORIGINAL
(Red)

P. O. No. -- BFU 67452

73 open top loads @ \$47.00 ea.-----	\$3431.00
49 compactor loads @ \$52.00 ea.-----	\$2548.00
5,132 yds. dumped at novaks state licensed landfill @ \$1.25 per yd.---	\$6415.00
1 mo. service at Ind. Park Warehouse at \$30.00 ,per container per mo. ----	60.00
Total -----	\$12,454.00

201297

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

10/1 19 79

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

ORIGINAL
(Rec)

P. O. No. --- BFU 67452

65 open top loads @ \$47.00 ea.	-----	\$3055.00
41 Compactor loads @ \$52.00 ea.	-----	2132.00
4427 yds dumped at novak's State Licensed Landfill @ \$1.25 per yd.	---	5533.75
1 mo. Service at Ind Park @ \$1.25 per yd. at \$30.00 per container per mo.	---	60.00
		<hr/>

Amt Due ----\$10,780.75

201298

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

11/1 19 79

GAF Corp.

Bldg. Materials Group

1139 Lehigh Avenue

Fullerton, Penna. 18052

P. O. No. ----- BFU 67452

40 Compactor loads @ \$52.00 ----- \$2080.00

89 Open Top loads @ \$47.00 ----- 4183.00

5,129 Yds dumped at Novak's State
Licensed Sanitary Landfill @ \$1.25 per cu. yd.
----- 6455.00

1 mo. Service at Warehouse in Ind. Park
at \$30.00 per cont. per mo. ----- 60.00

Amt Due ----- \$12778.00

ORIGINAL
(Red)

201299

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

12/1 1979

ORIGINAL
(Red)

GAF Corp.
Bldg. Materials Group
1139 Lehigh Avenue
Fullerton, Penna. 18052

November 1979

P.O. No. --- BFU 67452

32 Comp loads @ \$52.00 ea. -----	\$1664.00
80 Open Top loads @ \$47.00 ea. -----	3760.00
4,426 yds dumped at Novak's State Licensed Landfill @ \$1.25 per yd. -----	5531.25
1 mo. service at warehouse in Ind. Park @ \$30.00 per load per mo. -----	60.00

Amt Due ----- \$11,015.25

201300

VALLEY DISPOSAL

Div. of Novak Landfill Corp
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

1/1 19 80

GAF Corp.

Materials Group Bldg.

1139 Lehigh Avenue

Allentown, Penna. 18052

P. O. No. ----- BFU 67452

32 Compactor loads @ \$52.00 ea. -----	\$1664.00
58 Open top loads @ \$47.00 ea. -----	2726.00
3600 yds dumped at Novaks state licensed	
Sanitary Landfill @ \$1.25 per cu yd --	4500.00
Mo. service at warehouse Industrial Park	
@ \$30.00 per container per mo. -----	60.00

Total amt due- \$8950.00

201301

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

2-1

19 80

GAF Corp.

Buildings Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal Month of January

P.C. No. BFU 67452

36 Compactor Loads @ \$52.00 = \$1872.00

60 Open Top Loads @ \$47.00 = \$2820.00

3091 yds. dumped at Novaks

State Licensed Sanitary

Landfill @ \$1.25 per yd. =

4988.75
~~54876.25~~

1 month service at warehouse

in industrial park at \$30.00

per container per month =

\$ 60.00

Total

~~5528.25~~
9740.75

AR201302

VALLEY DISPOSAL

Div of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

3/1

19 80

GAF Corp.

Bldg Materials Group

1139 Lehigh Avenue

Fullerton, Penna 18052

P. O. No. ---BFU 67452

35 Compactor loads @ \$52.00 -----	\$1820.00
.68 Open top loads @ \$47.00 -----	3196.00
4,335 yds dumped Novaks state Licensed Sanitary Landfill @ \$1.25 per cu yd --	5418.75
1 mo serv at warehouse in Ind Park #1 @ \$30.00 per container per mo-----	60.00

Amt Due ----

\$10494.75

201302a

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

4-1 19 80

GAF Corp.

Bldg. Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal Month of March

P.O.No. BFU67452

37 Compactor loads @ \$52.00 = \$1924.00

66 Open Top Loads @ \$47.00 = \$3102.00

3748 yds. Dumped at Novaks

State Licensed Sanitary

Landfill @ \$1.25 per Cu. Yd. = \$4685.00

1 mo. service @ warehouse in

Industrial Park #1 @ \$60.00

per container per mo. = 60.00

Total \$2771.00

201303

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

5-1 19 80

GAF Corp.

Bldg. Materials Group

1139 Lehigh Ave.

Fullerton, Pa. 18052

ORIGINAL
(Reg)

P.O. No BFU67452

P.O. No FU4723

Refuse Removal Month of April

16-Compactor loads @ \$52.00 = \$832.00

17-Open Top loads @ \$47.00 = \$799.00

17-Compactor loads @ \$60.00 = \$1020.00

26-Open Top loads @ \$60.00 = \$1560.00

1420 yds. dumped at Novaks State

Licensed Landfill @ \$1.25 pr. yd. = \$1775.00

1811 yds. @ \$2.50 pr. yd. = \$4527.00

1 mo. service at warehouse located

in Industrial park @ \$30.00 per

container per month = \$60.00

Total \$10573.50

201304

VALLEY DISPOSAL

Div of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

6-1 1980

GAF Corp.

Bldg. Materials Group

1120 High Ave.

Fullerton, Pa.

Refuse Removal-May
P.C. No. FU4723

86 loads @ \$60.00 = \$5160.00

3,716 Cu. yds. dumped at Novaks
State Licensed Landfill @ \$2.50
per Cu. yd. = \$9290.00

1 mo. service at warehouse in
Ind. park @ \$30.00 per cont.
per mo. = 60.00

Total \$14,510.00

201305

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

7-1

19 80

ORIGINAL
(Red)

GAF Corp.

Eng. Materials Group

1130 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal - June-

P.O. No. --- FU-4723

104 loads @ \$60.00	\$6240.00
4189 yds. Disposed of at Novaks State Licensed Landfill @ \$2.50 Per Cu. Yd.	\$10472.50

1 mo. service at Warehouse in Ind. Park @ \$30.00 per cont. per mo.	\$60.00
---------------------------------------------------------------------------	---------

1-30 yd. Roll-Off load removed from warehouse @ \$110.00	\$110.00
-------------------------------------------------------------	----------

Total \$16,882.50

201306

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

July 30 19 80

ORIGINAL
(Red)

GAF Corp.
Buildg. Materials Group
1139 Lehigh Ave.
Fullerton, Pa.

Refuse Removal Month of July
P.O. No. FU4723

56 loads @ \$60.00 \$3360.00

27765 yds. Dumped at Novaks State Licensed
Sanitary Landfill @ \$2.50 per cu. yd. = 35665.00
\$5665.00

1 mo. service at Ind. Park warehouse @ \$30.00
per container per mo. = \$60.00

2-40 yd. Roll-Off loads removed from
warehouse in Ind. park @ \$140.00 = \$280.00

Total \$9365.00

201307

VALLEY DISPOSAL

Div. of Novak Landfill Corp.
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

ORIGINAL
(Red)

9-1-80

GAF Corp.

Bldg. Materials Group

1130 Lehigh Ave.

Fullerton, Pa. 18052

Refuse Removal- Aug.

P.O. No. FU-4723

88 loads @ \$60.00

= \$5280.00

3618 yds. Dumped at Novaks
State Licensed Landfill at
\$2.50 per cu. yd.

= \$9045.00

1 mo. service at warehouse
in Ind. Park @ \$30.00 per
cont. per mo.

= 60.00

Total

\$14385.00

201308

VALLEY DISPOSAL

Div. of Novak Landfill Corp
MODERN SANITATION EXPERTS

P.O. Box RD. 1

Allentown, Pa. 18104

10-1 19 80

GAF Corp. Bldg. Mat. Group

1139 Lehigh Ave.

Fullerton, Pa.

Refuse Removal - Sept.

22 loads @ \$60.00 = \$5520.00

3848 yds. Dumped at Novaks

State Licensed Landfill

@ \$2,50 per cu. yd. = \$9620.00

1 mo. service at Warehouse

in IND. Park at \$30.00 per

cont. per mo. = \$ 60.00

Total

\$15,200.00

ORIGINAL

201309

ORIGINAL
(Red)

Case Report

Case 1: A 44-year-old man with a history of chest pain worked from 1941 to 1945 in the maintenance area of a shipyard. He was exposed to asbestos, lead, and dust. There was no significant exposure to asbestos. He smoked one pack of cigarettes daily.

Four months illness developed and hemoptysis. tal, a left pleu treated with pe proved. One we hemoptysis and again developed

There were sounds over the was heard. A ch pleural effusion.

A thoracentesis revealed a sanguineous fluid with 154,000 erythrocytes per mm³. The leukocyte count was 25 g per cent. The glucose was 0.4 g per cent. The pH was 7.35. The fluid contained asbestos bodies. The fluid was negative for malignancy. Histologic examination of the pleura showed a malignant mesothelioma.

Case 2: A 61-year-old male referred to the physician for a normal chest radiograph and routine periodic

The patient installing asphalt had a history of other chest trauma, complained of flights of stairs, roxysmal nocte. He had smoked for the past 15

Physical examination revealed, plethoric diameter of the scattered, crepitations at the bases bilaterally. The pulse at the fingers was present. A chest roentgenogram

aeral
 :fore,
 floor
 : are

Asphalt or vinyl-asbestos floor tile contains fifteen to twenty fibers are firmly embedded in the binding material. They seem to be an unlikely source of a hazardous dust exposure. One worker with biopsy-proved mesothelioma and another worker with asbestosis are presented. Both workers had frequently sanded asphalt and vinyl tile floors prior to installation of new floor covering. An investigation of the work process revealed that under simulated conditions of work, asbestos dust concentrations as large as 1.5 fibers per ml were found in air samples passed through membrane filters worn by a person engaged in sanding vinyl asbestos. Characteristic asbestos fibers were seen in electron photomicrographs of these samples. These findings suggest that before the tile sanding procedure is performed adequate respiratory protection should be provided or alternate, available installation methods should be used.

Asphalt or vinyl-asbestos floor tile contains 15 to 25 per cent asbestos; however, the mineral fibers are firmly embedded in the binding material (1). Installation of these tiles would, therefore, seem to be an unlikely source of hazardous dust exposure. Recently the writers studied two installers of

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¹From the Medical Services, Massachusetts General Hospital and Department of Medicine, Harvard Medical School; and the Departments of Environmental Health Services and Physiology, Harvard School of Public Health, Boston, Massachusetts.

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floor tile, one with biopsy-proved mesothelioma and the other with extensive pleural calcifications who had no other known exposure to asbestos. These workers had frequently sanded asphalt and vinyl tile floors before installation of new floor covering. In this report, these cases and the results of an investigation of exposure to asbestos during tile sanding are presented.

* Requests for reprints should be addressed to Dr. Raymond L. H. Murphy, Department of Physiology, Harvard School of Public Health, 665 Huntington Avenue, Boston, Massachusetts 02115.

* Research Fellow in Medicine, Massachusetts General Hospital and Harvard Medical School, Supported by National Institutes of Health contract PH-4367-1443.

~~201310~~

Case Reports

Case 1: A 44-year-old man was admitted because of chest pain of one week's duration. He had worked from 1948 to 1967 as a floor tile installer and routinely sanded old tile before resurfacing it. There was no history of other occupational dust exposure. He had worked in a nondusty area of a shipyard from 1945 to 1947 repairing gyroscopes. From 17 to 30 years of age, he had smoked one package of cigarettes per day.

Four months before his present admission an illness developed with left anterior chest pain and hemoptysis. On admission to another hospital, a left pleural effusion was noted. He was treated with penicillin and was discharged improved. One week before his current admission, hemoptysis and severe, pleuritic, left chest pain again developed.

There were dullness and decreased breath sounds over the left lower chest. No friction rub was heard. A chest roentgenogram revealed a left pleural effusion without calcifications.

A thoracentesis yielded 2,000 ml of serosanguineous fluid that contained 3,400 leukocytes per mm³, predominately mononuclear cells, 154,000 erythrocytes per mm³, and no polymorphonuclear leukocytes. The glucose concentration was 25 g per 100 ml; the concurrent blood glucose was 80 mg per 100 ml. Total protein concentration of the fluid was 4.8 g per 100 ml. No asbestos bodies were seen, and cytologic examination of the cells in the fluid suggested malignancy. Histologic examination of a needle biopsy of the pleura showed malignant papillary mesothelioma.

Case 2: A 61-year-old floor tile installer was referred to the pulmonary clinic because of an abnormal chest roentgenogram taken during a routine periodic medical evaluation.

The patient had worked for the past 30 years installing asphalt and vinyl tile. There was no history of other occupational dust exposure, chest trauma, pneumonia, or hemoptysis. He complained of mild dyspnea on climbing two flights of stairs, but denied orthopnea, paroxysmal nocturnal dyspnea, and ankle edema. He had smoked one package of cigarettes per day for the past 45 years.

Physical examination revealed a well developed, plethoric white man. The anteroposterior diameter of the chest was increased, and fine, scattered, crepitant, inspiratory rales were noted at the bases bilaterally. Marked clubbing of the fingers was present.

A chest roentgenogram (figure 1) showed a



Fig. 1. Posteroanterior chest roentgenogram revealing extensive pleural calcification, pleural thickening, and pulmonary fibrosis.

dense plaque of calcification in the left pleural space and sheetlike calcifications in the pleura on the right. Dense calcifications were seen on both diaphragmatic pleural surfaces. The diaphragms were flattened.

The vital capacity was 64 per cent of predicted with a one-second forced expiratory volume of 65 per cent of the total. Arterial oxygen tension at rest was 71 mm Hg. The single breath pulmonary diffusing capacity was 60 per cent of predicted.

Dust Exposure

To simulate normal work practice, samples of vinyl tile were laid on a plywood sheet using tile cement. This sheet was placed inside a room approximately 10 feet wide, 12 feet long, and 7 feet high that was exhausted at a rate of four air changes per hour. An operator wearing a respirator sanded the tile for approximately 20 minutes using a conventional belt sander with a coarse grit.

During the work period, air sampling was carried out to determine the exposure to asbestos fibers. Two personal samplers worn by the operator collected air samples on membrane filters at an average sampling rate of 3.6 liter per min. Fibers longer than 5 μ with an aspect ratio greater than 3 were counted under phase contrast microscopy by the technique of Edwards and Lynch (2). Dust concentrations for these two parallel samples were 1.2 fibers and 1.5 fibers per ml of air, respectively. These concentrations are below the recently revised threshold limit value

ORIGINAL
(Red)

201311

ORIGINAL
(Red)

Fig. 2. Electron photomicrograph of a replicated membrane filter showing asbestos fibers.

of 5 fibers per ml (3) but do represent significant exposures. Under other work conditions, the threshold limit value could be exceeded.

The fields of these membrane filters examined under phase microscopy were consistent with those seen in samples collected in other asbestos operations such as marine insulation installation and tearout. Discrete fibers were evident and were easily counted. Characteristic asbestos fibers are shown in the electron photomicrograph of a replicated membrane filter sample (figure 2).

During the sanding operation, a point-to-plane electrostatic precipitator was used to collect a series of samples on grids for electron microscopy. These fibers met the criteria proposed for asbestos by Gross and associates (4) (figure 3). The ends of the fibers had profiles characterized by steplike interruptions, and fibril bundles were

easily seen. Fibers were clumped together within the matrix of the tile material.

Discussion

Both of the tile installers had diseases known to be associated with exposure to asbestos.

The first patient had typical clinical, roentgenographic and pathologic findings of pleural mesothelioma. Epidemiologic investigations of cases of mesothelioma have shown asbestos exposure in more than 40 per cent (5, 6). The incidence of mesothelioma in the general population is from 1 in 1,000 to 1 in 10,000 deaths (7). Because the present studies revealed that air-borne asbestos particles are generated during sanding of

tile, asbestos
a cause of
employment
involve work
likely that
Nonoccupational
mesothelioma
be excluded

Significant
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in 1,117
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bestos ex
seems cle
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had a ki
more diff
of under

201312



Fig. 3. Air-borne asbestos fibers collected by electrostatic precipitator.

tile, asbestos must be strongly considered as a cause of the patient's illness. Because his employment in gyroscope repair did not involve work in engineering spaces, it is unlikely that he was exposed to asbestos dust. Nonoccupational exposure to asbestos or mesothelioma unrelated to asbestos cannot be excluded.

Significant asbestos exposure was also implicated in the second patient who had extensive bilateral pleural calcifications. Selikoff found 150 cases of pleural calcification in 1,117 installation workers and concluded that in the absence of a history of chest infection or trauma, bilateral pleural calcification can usually be considered to be due to asbestos exposure (8). The causal relationship seems clear because the patient had no history of pulmonary infection or trauma and had a known exposure to asbestos. It was more difficult, however, to assess the extent of underlying pulmonary asbestosis in this

worker. The commonly described clinical manifestations of this disease include dyspnea, basilar rales, clubbing of the fingers, decreased vital capacity, abnormal diffusing capacity, decreased compliance, hypoxemia, and characteristic radiographic changes in the lungs (9). The patient exhibited most of these findings and had no evidence of heart disease, other systemic disorder, or occupational exposure. It is likely, therefore, that he had at least minimal pulmonary asbestosis as well as pleural disease.

Asbestos tile has been installed on countless floors during the last 30 years. Because this industry is the second largest consumer of this mineral in the United States, the potential hazard is significant if the current method of sanding these floors continues (1). The clinical findings in these subjects and the results of air sampling in a simulated work environment suggest that before the tile sanding procedure is performed ade-

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quate respiratory protection or an alternate installation method should be used. The association between installation of tile and asbestos-related disease suggests that epidemiologic, environmental, and clinical investigation of tile installers be conducted. In addition, practicing physicians should be alerted to the possibility of asbestos-related illness in this occupation.

Acknowledgments

The writers are grateful to Mr. Lloyd Shoenbach for the extensive electron microscopy carried out during this study and to Dr. Heinrich Brugsch for reviewing the manuscript.

RESUMEN

Instalación de baldosas para el piso como una fuente de exposición a asbestos

El asfalto o la baldosa para el piso de vinilo-asbestos contiene de 15 a 25 por ciento de asbestos, pero las fibras numerales están firmemente incrustadas en el material de ligamiento. La instalación de estas baldosas, por consiguiente, no parecería ser una fuente peligrosa de exposición al polvo. Se presentan los casos de 2 instaladores de baldosas para el piso, uno con un mesotelioma comprobado por biopsia y el otro con calcificaciones pleurales extensas. Estos trabajadores habían lijado frecuentemente baldosas el piso de asfalto y de vinilo antes de instalar los nuevos pisos. La ocurrencia de estos casos llevó a una investigación del proceso de trabajo. Bajo condiciones de trabajo simuladas, se encontraron concentraciones de polvo de asbestos tan altas como 1.3 fibras por ml en muestras de aire en filtros de membrana que llevaba puesta una persona envuelta en lijar los asbestos de vinilo. Fibras de asbestos características de estas muestras fueron vistas en fotomicrografos electrónicos. Estos hallazgos sugieren que antes del proceso de lijar se lleve a cabo, se debería usar una protección respiratoria adecuada o usar otros métodos de instalación al alcance.

RESUME

L'installation des carrelages: source d'exposition à l'amianté

Les carreaux d'asphalte ou d'une combinaison de vinyl et d'asbeste contiennent de 15 à 25 pourcent d'amianté, mais les fibres sont intimement liées à l'agent agglutinant. L'installation de ces carreaux paraît donc une source improbable de

troubles pneumoconiotiques. Les rapports médicaux de deux ouvriers installateurs de carrelage, l'un souffrant de mésothéliome confirmé à la biopsie, et l'autre étant porteur de calcification pleurales sont présentés ici. Ces deux ouvriers avaient souvent sablé des carrelages d'asphalte ou de vinyl-asbeste au papier de verre, avant d'installer des nouveaux carreaux. L'incidence de ces cas a incité à une investigation du procédé. En recréant les conditions de travail, des concentrations de poussière d'amianté d'un niveau aussi élevé que 1.3 fibres par ml ont pu être mesurées dans l'air ambiant. Les mesures furent déterminées en faisant passer des échantillons d'air sur un papier filtré fixé sur un travailleur en train de sabler des tuiles de vinyl-asbeste. Des photomicrographies de ces prélèvements ont montré qu'il s'agissait de fibres amianté caractéristiques. En conséquence, nous devons appliquer une protection respiratoire suffisante lors du sablage de tuiles ou choisir un autre procédé d'installation.

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Technical Series

Asbestos Products

Asbestos-containing Flooring Products

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FOREWORD

One of the main objectives of the Canadian Asbestos Information Centre is to make available to all interested parties the most factual and up-to-date information possible on all scientific, medical, technical, regulatory or commercial aspects of asbestos.

The Centre's Technical Facts aim to assemble in a single document the various data existing on asbestos products — and often originating from multiple sources — from the technical and technological standpoint as well as that of health and safety. The documents cover a variety of aspects such as manufacturing processes, usage, physical characteristics, performance assessment.

The purpose of these documents is to provide a maximum of facts on asbestos-containing products so as to promote enlightened decisions on the uses of asbestos.

The present document was compiled to answer the many queries received by the Centre, especially from the United States, about asbestos-containing floor coverings. In view of the particular interest manifested in the United States, most of the data referred to in this brochure have been gathered from U.S. sources.

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INTRODUCTION

This brochure explains the use of asbestos in vinyl-asbestos floor tile and vinyl sheet flooring. The test data gathered in this brochure are aimed at providing update information on the functions and safety of these products.

Health Concerns in Perspective

Because of the potential health problems associated with occupationally-related exposure to asbestos, there continues to be some question regarding its safe use in modern products. When discussing asbestos health concerns related to asbestos-containing flooring products, it is important to keep several facts in mind.

1. In the manufacture of flooring products containing asbestos fibre, advances in packaging materials for asbestos and adherence to proper work procedures and industrial hygiene practices are meant to prevent potentially hazardous exposures in occupational and related environments.

2. In vinyl sheet flooring, asbestos is only incorporated in the backing felt, where it is encapsulated by the latex binder. No asbestos is used in the wearing surface of sheet flooring and thus traffic wear will not cause release of fibre. Asbestos in vinyl-asbestos tile is mixed throughout the tile, but is encapsulated by the plastic binder. In-use monitoring tests have been performed on

floor tile in an effort to evaluate potential fibre release. To our knowledge, all tests have failed to demonstrate any detectable fibre release from heavy pedestrian traffic or floor maintenance operations.

A similar conclusion can be found in a U.S. Navy report on a study of asbestos-containing flooring materials. They reported no reason to be concerned about adverse health effects in using such products.

"Materials which contain asbestos encapsulated in a pliable or malleable organic binder (vinyl-asbestos floor tile or asphalt-asbestos roof tile) are not likely to release asbestos fibres even under the most severe conditions and consequently need not be substituted except when specifically directed." (1)

3. During the removal of asbestos-containing flooring products, adherence to recommended work procedures, published by flooring manufacturers or, in the U.S., by the Resilient Floor Covering Institute, has been shown to prevent hazardous exposures. The recommended procedures stress the importance of not sanding an existing resilient floor covering. However it is considered completely acceptable to buff an existing resilient floor covering.

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SECTION I

Vinyl Sheet Flooring

Why Asbestos?

The asbestos fibre in vinyl sheet flooring contributes many valuable characteristics to the finished product. The asbestos/latex backing makes the flooring resistant to rot, which is especially important in high humidity environments or when the flooring is laid in basements or on concrete slab floors. Asbestos also contributes to the dimensional stability of the flooring in these environments. Another advantage of asbestos/latex felt backed flooring resides in its stretch recovery characteristic, resulting in a product that, after installation, retains its shape even as the sub-floor expands and contracts with temperature change. Asbestos provides a cost-effective means of building thickness in the flooring, ensuring warmth and comfort together with strength and durability.

Aside from its characteristics in the finished product, asbestos/latex felt plays a key role in facilitating the manufacturing process, permitting the felt to withstand the high temperatures required for the finishing and curing operations and adding the strength needed to endure the rolling and pulling effect of manufacturing machinery.

Manufacturing

Asbestos/latex backing is produced on a paper machine. Asbestos fibre used in the process is supplied in pulpable paper bags that need not be opened. Mixing is done in a hydropulper with water. Latex is added to the asbestos slurry in a chemical chest before being pumped into the paper machine head box.

On the most commonly used paper machine, the fibre suspension will flow out of the head box onto a traveling wire mesh cloth. Water drains through the wire assisted by table rolls and/or suction boxes. The sheet, with the fibre encapsulated by the latex, then passes through rollers and is dried on a series of steam-heated cylinders. In a final step, the sheet is passed through a stack of calendar rolls to control thickness and smoothness.

The asbestos/latex felt is converted to a finished flooring product in a variety of operations, which may include addition of a foam cushion layer to the felt, followed by roto-gravure printing or embossing of a decorative pattern. In the final step a vinyl or urethane coating is applied, which serves as the wearing surface of the flooring.

Substitutes

Since a vast wealth of knowledge on potential exposures and safe procedures is available to the manufacturing asbestos/latex vinyl flooring, it is, in a very practical sense, probably safer to use asbestos than many other materials about which little is known.

Among the substitutes developed for asbestos in the backing of vinyl sheet flooring is a composite material based on cellulose and fillers such as calcium carbonate. This product, according to experts in the field, lacks the dimensional stability and rot resistance of the asbestos/latex backing. In addition, the composite material does not have the tensile strength and heat resistance of asbestos that is important in manufacturing.

The evaluation of other substitute materials, such as polyesters and fibrous glass, also tends to show that asbestos still is the most cost-effective material for sheet flooring.

At present, competitive products for asbestos-containing vinyl flooring are carpeting and hardwoods. While the choice of products often is conditioned by price, other factors also are important. Both carpeting and hardwoods normally require greater amounts of maintenance than vinyl sheet flooring and may not be suitable for high-traffic commercial areas. In addition, most carpeting and hardwoods will not provide the same rot protection inherent in asbestos.

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SECTION II

Vinyl-Asbestos Floor Tile

Why Asbestos?

When used in the manufacture of floor tiles, asbestos fibre imparts abrasion and indentation resistance, as well as reinforcement and dimensional stability. The result is a durable, long-lasting floor tile that is especially suitable for commercial installations where heavy wear can be expected.

The reinforcing characteristic of asbestos in floor tiles is especially important, and is demonstrated by the fact that tiles not manufactured with asbestos have a greater tendency to indent or become brittle and crack. This attribute is important when heavy wear can be expected from pedestrian traffic, mobile equipment or when heavy furniture or appliances will be resting on the flooring.

The tensile strength of asbestos and its ability to withstand high temperatures also are important in the manufacturing process.

Manufacturing

In the manufacture of vinyl-asbestos floor tiles, unopened bags of asbestos can be fed directly into the mixers since the polyethylene bags will melt at the high temperatures used in the process.

A cohesive mass is formed after being mixed with resin, plasticizers, fillers and pigments. This hot material is fed to a two-roll mill where it is blanketed out to a desired thickness. The slab then is passed through a series of calendar rolls to bring the product to a uniform, finished thickness.

Embossing or pigmenting is done before cutting, while the material still is soft. Cooling usually is accomplished by water sprays, although air cooling is necessary before die cutting in order to minimize shrinkage.

Substitutes

The search for cost effective substitutes for asbestos in vinyl floor tiles has been difficult. The flooring industry considers that by and large asbestos remains the most efficient, reliable and cost-effective material for this use.

One substitute for asbestos that has been evaluated is a product that uses more limestone in place of the asbestos. Tests, however, show that this mixture lacks the hot strength of asbestos, and also tends to be brittle and more likely to crack.

Fibrous glass also has been evaluated as a substitute. This material tended to cause problems in the

manufacturing process, that would necessitate a change in equipment for most floor tile manufacturers. In addition, the mixture was difficult to stabilize thermally under the high temperatures used in manufacturing, often resulting in degradation of the vinyl itself.

When a combination of fibrous glass and ball clay was tested, the end product proved to be brittle and to pose the need for costly changes in the manufacturing process.

Some man-made organic materials, such as polyethylene and polypropylene, also have been evaluated as substitutes for asbestos in vinyl floor tiles. These materials tend to melt or degrade at the high temperatures necessary in the manufacturing process, resulting in quality problems in the final product.

Another substitute for vinyl-asbestos floor tiles is vinyl tile, without asbestos. This product costs considerably more.

Carpeting and hardwoods also can be considered for most of the same uses as vinyl-asbestos floor tiles; however, they may not be as suitable for heavy wear applications. It is generally agreed that vinyl-asbestos tiles will outlast even the best carpeting and hardwoods in heavy commercial usage.

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SECTION III

Exposure Studies: Sheet Flooring

Monitoring

In 1979, Stanford Research Institute (SRI) International, in the U.S., undertook a study of sheet vinyl flooring to monitor for asbestos during installation and removal operations. In-use and maintenance tests were not performed since there is no asbestos in the wear layers. (2)

All monitoring and analysis was conducted according to methods prescribed by the U.S. National Institute for Occupational Safety and Health (NIOSH). The NIOSH asbestos monitoring technique has a minimum sensitivity of 0.1 fibre per cubic centimeter. Results are given to hundredths of a fibre per cubic centimeter for illustrative purposes only.

Installation: Personal, area and high volume samples were taken during this operation in a private home. Background level samples also were taken prior to and after installation for comparison purposes. The results of this test showed asbestos fibre concentrations ranging from 0.008 to 0.012 fibre/cc, compared with a permissible federal limit of 2.0 fibres/cc. The researchers concluded that the "airborne asbestos concentrations are very low and well below the OSHA allowable limit when recommended procedures are followed." All of the findings were within the ranges normally found in background levels. (Tables 1 through 5).

Removal: A variety of removal tests were conducted — unadhered, adhered and partially adhered removal. Personal, area and background air samples were taken, and in all cases, the detectable concentrations of asbestos fibre were well below the recommended OSHA limit. When proper work procedures were followed, the ranges were comparable to natural background levels. (Tables 6 through 8).

Comparison Testing

SRI International also conducted a study aimed at monitoring asbestos fibre levels during the removal of sheet flooring using different methods — wet versus dry, and different scraping instruments. (3) (The industry recommends wet scraping methods).

Results of this study showed that wet scraping methods resulted in very low concentrations of asbestos fibre well below permissible occupational exposure levels. Dry scraping methods resulted in an increase in the level of airborne asbestos although even these ranges still were at or below permissible limits. They concluded by recommending the wet scraping procedures. (Table 9)

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SECTION IV

Exposure Studies: Floor Tiles

Monitoring

A study was undertaken in 1979 by Stanford Research Institute (SRI) International to monitor for asbestos fibres that might be present during conditions of use, maintenance, installation and removal of vinyl-asbestos floor tiles. (4)

All monitoring and analysis was conducted according to methods prescribed by the U.S. National Institute for Occupational Safety and Health (NIOSH). The NIOSH asbestos monitoring technique has a minimum sensitivity of 0.1 fibre per cubic centimeter. Results are given to hundredths of a fibre per cubic centimeter for illustrative purposes only.

In-Use Test: The researchers simulated the worst conditions by stripping all wax from vinyl-asbestos floor tiles in an office building, and then monitoring for emission of fibre during heavy pedestrian traffic. Since no detectable traces of asbestos fibre were found during this test, the researchers concluded that the asbestos constituent of floor tiles does not pose a health threat. (See Table 10)

Maintenance Test: Monitoring was conducted during maintenance of a vinyl-asbestos floor — damp mopping, floor stripping, etc. No detectable amounts of asbestos fibres were found and the researchers concluded that such operations present no hazard to maintenance workers. (See Table 11)

Installation Test: Personal samples of workers and general environment samples were taken during the installation of a vinyl-asbestos floor in a private home. The researchers concluded: "The number of asbestos fibres on the filters was very small, all well below 0.1 fibre/cc. Compared to the OSHA limit of 2.0 fibres/cc, the concentrations measured when recommended work procedures are followed, 0.0046 f/cc to 0.0027 f/cc, are insignificant." (See Tables 12 and 13)

Removal Test: Monitoring for asbestos fibres was conducted during the complete removal of a vinyl-asbestos floor in a private home. Both personal and area samples were taken during this operation. Results of the study showed that, "the number of asbestos fibres on the filters was very small, all well below 0.1 fibre/cc. Compared to the OSHA limit of 2.0 fibres/cc, the concentrations measured when recommended work procedures were followed, 0.006 f/cc to 0.015 f/cc, are insignificant." (See Table 14)

Consumer Union Study

The Consumers Union, in a study of a variety of floor tiles, also conducted tests on vinyl-asbestos floor tiles. Its researchers saw no reason to discontinue the use of vinyl-asbestos floor tiles, concluding:

"The asbestos fibres in tiles that have them are securely bonded into the vinyl. They are not likely to be released — except perhaps by sanding — a practice that should be avoided." (5)

IRDA Study

The Institut de Recherche et de Développement sur l'Amiante (IRDA), in Sherbrooke, Québec, conducted tests to examine the possible environmental burden which may result from normal handling and from wearing of vinyl-asbestos tile flooring. (6)

Simulation of "normal" work practices for laying vinyl-asbestos tiles showed that this operation results in no detectable exposure to airborne asbestos fibres.

Simulation of heavy misuse by continuous, prolonged sanding yielded an average of 1.2 fibres/cc, counting fibres according to the NIOSH method. (See Table 15)

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SECTION V

Work Practices

A number of studies have verified the fact that adherence to generally accepted housekeeping practices and recommended work procedures will provide protection from any health risk.

As noted, recommended work procedures for the installation and removal of asbestos-containing floor coverings are available from manufacturers, or the Resilient Floor Covering Institute. (7)

Standards for exposure to asbestos dust and for emissions of asbestos to the atmosphere are available from governmental regulatory agencies or departments. (8)

CONCLUSION

As noted in this brochure, vinyl sheet flooring backed with asbestos/latex and vinyl-asbestos floor tiles offer special characteristics which make them highly suitable, in comparison with other materials, for use in heavy traffic or commercial areas.

In the manufacturing process of both products, the tensile strength of asbestos and its ability to withstand high temperatures constitute important advantages.

From the health and safety standpoint, a number of studies of both vinyl-asbestos floor tiles and vinyl sheet flooring have shown that, with proper work procedures, the possibility of exposure to asbestos dust in all stages of use, maintenance, installation and removal is not significant and presents no evidence of threat to human health.

When such practices are carried out, modern flooring products are safe to use, and appear to be the most cost-effective materials presently available.

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CFR 40, Title 46, Ch. 1 — EPA, National Emission Standards for Hazardous Air Pollutants — Asbestos and Mercury.
In Canada,
Air Pollution Control Directorate, Environmental Protection Service (EPS-3-AP-76-6). Also relevant provincial agencies and departments.

TABLE 1

SRI International Test Results Sheet Vinyl Flooring — Adhered

Installation — Site No. 1: Model home kitchen in a new housing development in Northern Virginia

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Outside Air	XX-1	660	330	4.7	0.002	0.0001	
Area-Bedroom	C-1069	876	438	111.7	0.1	0.0052	
High-Volume Sample	XX-1	782.6	78.2	99.5	0.18	0.009	
Head Mechanic	C-1071	354	177	133.7	0.31	0.0155	0.0155
Assist. Mechanic	XX-003	350	175	105.8	0.246	0.0123	0.0123

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 5% of the total number of fibres were asbestos.

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TABLE 2

SRI International Test Results
Sheet Vinyl Flooring — Adhered

Installation — Site No. 2: Kitchen of a six-year-old home in a suburban Maryland community

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Outside Air	AB-9	750	380	2.5	0.0026	0	
Outside Air	C-1089	756	383	0	0	0	
Kitchen Background	XX009	748	374	4.5	0.005	0	
Mechanic 1	MWC0620	200	100	0	0	0	0
Mechanic 2	MWC-1097	200	100	0	0	0	0

*Fibres/sq. mm of total filter surface area.

**Analyst estimated that none of the fibres were asbestos.

TABLE 3

SRI International Test Results
Sheet Vinyl Flooring — Adhered

Installation — Site No. 3: Kitchen of a private home in Woodstown, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	RFCI #1	264	120	0	0	0	
Background	RFCI #2	321	169	0	0	0	
Kitchen Area	MWCO 681	462	231	92	0.17	0.017	
Mechanic JW	MWCO 690	104	58	77	0.633	0.063	0.063
Mechanic JP	MWCO 698	120	60	92	0.655	0.066	0.066

Wet bulb temperature — 61°F (16°C); dry bulb temperature — 72°F (22°C).

*Fibres/sq. mm of total filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

Note:

All measurements with the GCA Respirable Dust Monitor were less than the detection limit (0.1 mg/m³) of the instrument.

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TABLE 4

SRI International Test Results
Sheet Vinyl Flooring — Adhered

Installation — Site No. 4: lower-level foyer of split-level home in Pennsville, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	MWCO 693	336	168	0	0	0	
Background	MWCO 677	675	355	0	0	0	
Family Room Area	MWCO 688	678	357	62	0.078	0.0008	
Steps-Area	RFCI #4	650	342	70	0.092	0.009	
Mechanic JW	MWCO 674	304	179	197	0.554	0.055	0.055
Mechanic JP	MWCO 679	283	177	25	0.075	0.008	0.008

Wet bulb temperature — 63°F (17°); dry bulb temperature — 73°F (23°C).

*Fibres/sq. mm of total filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

Note:

All measurements with the GCA Respirable Dust Monitor were less than the detection limit (0.1 mg/m³) of the instrument.

TABLE 5

SRI International Test Results
Sheet Vinyl Flooring — Unadhered

Installation — Site No. 3: Kitchen of private home in Salem, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	MWCO 699	327	172	30	0.078	0.008	
Background	RFCI #6	241	127	17	0.060	0.006	
Area-Living Room	MWCO 661	238	119	0	0	0	
Area-Kitchen	MWCO 697	216	108	100	0.395	0.040	
Mechanic JP	MWCO 694	84	44	32	0.325	0.033	0.033
Mechanic JW	MWCO 680	90	45	107	1.01	0.102	0.102

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

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TABLE 6

SRI International Test Results
Sheet Vinyl Flooring — Unadhered

Complete Removal — Site No. 5: Kitchen of private home in Salem, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/ Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	MWCO 699	327	172	30	0.078	0.008	
Background	RFCI #6	241	127	17	0.060	0.006	
Area-Living Room	MWCO 661	238	119	0	0	0	
Area-Kitchen	MWCO 697	216	108	100	0.395	0.040	
Mechanic JW	RFCI #7	144	76	17	0.100	0.010	0.010
Mechanic JP	MWCO 689	148	74	12	0.069	0.007	0.007

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

TABLE 7

SRI International Test Results
Sheet Vinyl Flooring — Adhered

Complete Removal — Site No. 4: lower-level foyer of split-level home in Pennsville, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/ Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	MWCO 693	336	168	0	0	0	
Background	MWCO 677	675	353	0	0	0	
Area-Family Room	MWCO 688	678	357	62	0.078	0.008	
Area-Steps	RFCI #4	650	342	70	0.092	0.009	
Mechanic JW	MWCO 696	206	121	97	0.402	0.040	0.040
Mechanic JP	MWCO 691	197	123	85	0.368	0.037	0.037

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

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TABLE 8

SRI International Test Results
Sheet Vinyl Flooring — Adhered

Partial Removal — Site No. 3: Kitchen of a private home in Woodstown, New Jersey

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	RFCI #1	264	120	0	0	0	
Background	RFCI #2	321	169	0	0	0	
Area-Kitchen	MWCO 681	462	231	92	0.170	0.017	
Mechanic JW	RFCI #3	88	44	42	0.408	0.041	0.041
Mechanic JP	MWCO 678	112	62	25	0.190	0.019	0.019

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

TABLE 9

SRI International Test Results
Sheet Vinyl Flooring — Unadhered

Comparison Testing
Complete Removal — Site: Kitchen of six-year-old home in a suburban Maryland community

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background Samples							
Outside	AB-9	760	380	0	0	0	
Outside	C-1089	766	383	0	0	0	
Kitchen	XX009	748	374	0	0	0	
Wear Layer Removal							
Mechanic 1	AB-12	150	75	39	0.218	0.1637	0.1637
Mechanic 2	AB-2	140	70	14	0.0844	0.0844	0.0844
Wet Scrape							
Mechanic 1	AB-14	110	55	96	0.4837	0.4093	0.4093
Dry Scrape							
Mechanic 1	AB-13	126	63	327	2.168	2.0248	2.0248
Mechanic 1	AB-11	80	40	96	1.0035	0.8279	0.8279
Mechanic 2	AB-10	126	63	191	1.2669	1.1207	1.1207
Mechanic 2	AB-15	90	45	121	1.1259	1.0583	1.0583

*Fibres/sq. mm of filter surface area.

**Analyst estimated that about 90% of the fibres were asbestos.

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ORIGINAL
(Red)

TABLE 10

SRI International Test Results
Vinyl-Asbestos Floor Tiles

In-Use — Site No. 2: Office building in Alexandria, Virginia

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/ Sq. mm*	Total Fibres/cc	Asbestos Fibres/cc
Background samples						
Air Vent	C-1066	588	294	4.7	0.0067	0
Hallway	XX005	556	278	4.7	0.007	0
Copy Centre	X18	590	295	0	0	0
Outside	XX102	616	308	0	0	0
Outside	XX031	834	417	0	0	0
Outside	XX006	840	420	0	0	0
Copy Centre						
1 ft high	XX015	594	297	2.5	0.0035	0
3 ft high	XX008	594	297	0	0	0
5 ft high	XX016	594	297	0	0	0
Snack Shop	C-1051	284	142	0	0	0
In-use samples						
Copy Centre — Table						
1 ft high	XX027	838	419	4.4	0.0044	0
3 ft high	XX030	838	419	0	0	0
5 ft high	XX011	838	419	11.1	0.011	0
Copy Centre — Middle Room						
1 ft high	C 1078	822	411	2.3	0.0023	0
3 ft high	C 1096	822	411	4.5	0.0046	0
5 ft high	C 1083	822	411	4.6	0.0047	0
Snack Shop						
Bookcase — 1 ft	XX017	260	130	0	0	0
Bookcase — 3 ft	XX022	260	130	0	0	0
Bookcase — 5 ft	XX002	260	130	2.5	0.0079	0
Storage Door — 1 ft	XX023	266	133	4.5	0.0618	0
Storage Door — 3 ft	XX019	266	133	2.4	0.0088	0
Storage Door — 5 ft	XX029	266	133	0	0	0

*Fibres/sq. mm of filter surface area.

**Analyst estimated that none of the fibres were asbestos.

201328

ORIGINAL
(Red)

TABLE 11

SRI International Test Results
Vinyl-Asbestos Floor Tiles

Maintenance — Site No. 2: Office building in Alexandria, Virginia

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc
Background samples						
Air Vent	C1066	588	294	4.7	0.0067	0
Hallway	XX005	556	278	4.7	0.007	0
Copy Centre	XJB	590	295	0	0	0
Outside	XX102	616	308	0	0	0
Outside	XX031	834	417	0	0	0
Outside	XX006	840	420	0	0	0
Snack Shop	C1051	284	142	0	0	0
Maintenance samples						
Mopping-Copy Centre	XX026	30	15	4.9	0.1351	0
Buffing-Copy Centre	XX001	30	15	4.3	0.1210	0
Mopping-Snack Shop	XX000	42	21	9.8	0.1949	0
Buffing-Snack Shop	XX025	42	21	0	0	0
Buffing-Copy Centre	KGB-1	22	11	2.4	0.0921	0
Buffing-Copy Centre	XX	60	30	0	0	0
High Volume Sample (Mopping)	QTH-1	537	54	4.9	0.0075	0
Floor Area	XX-014	30	15	2.5	0.682	0

*Fibres/sq. mm of filter surface area.

**Analyst estimated that none of the fibres were asbestos.

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ORIGINAL
(Red)

TABLE 12

SRI International Test Results
Vinyl-Asbestos Floor Tiles

Installation — Site No. 3: Private home in Newark, Delaware

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	RFCI #8	587	326	0	0	0	
Background	MWCO 700	594	297	10	0.014	0.001	
Area-Breezeway	MWCO 692	537	316	70	0.0111	0.0011	
Area-Laundry	MWCO 686	739	389	140	0.161	0.016	
Area-Powder Room	MWCO 685	725	372	75	0.088	0.009	
Mechanic JS	MWCO 682	464	232	145	0.267	0.027	0.027
Mechanic TD	MWCO 684	418	220	40	0.081	0.008	0.008

*Fibres/sq. mm of total filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

TABLE 13

SRI International Test Results
Vinyl-Asbestos Floor Tiles

Installation — Site No. 1: Model home in new housing development in Northern Virginia

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Indoor Background	C1069	876	438	111.7	0.104	0.0052	
Outdoors	XX-1	660	330	4.7	0.003	0.003	
High-Volume Sample	XX11	1710	90	38.1	0.28	0.0014	
Head Mechanic	C102	228	114	27	0.092	0.0046	0.0046
Assistant Mechanic	C1062	226	113	52.3	0.184	0.0092	0.0092

*Fibres/sq. mm of filter surface area.

**Analyst estimated that about 5% of the fibres were asbestos except for filter XX-1.

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ORIGINAL
(Recd)

TABLE 14

SRI International Test Results
Vinyl-Asbestos Floor Tiles

Complete Removal — Site No. 3: Private home in Newark, Delaware

Description	Filter No.	Air Vol. (Liters)	Time (Min.)	Fibres/ Sq. mm*	Total Fibres/cc	Asbestos** Fibres/cc	8-Hr. TWA
Background	RFCI #8	587	326	0	0	0	
Background	MWCO 700	594	297	10	0.014	0.001	
Area-Breezeway	MWCO 692	537	316	70	0.111	0.011	
Area-Laundry Room	MWCO 686	739	389	140	0.161	0.016	
Area-Powder Room	MWCO 685	725	372	75	0.088	0.009	
Mechanic JS	MWCO 662	246	123	18	0.062	0.006	0.006
Mechanic TD	MWCO 687	255	134	44	0.147	0.015	0.015

*Fibres/sq. mm of filter surface area.

**Analyst estimated that 10% of the fibres were asbestos.

TABLE 15

IRDA Test Results

Fibre Concentration Resulting from Various Handling Operations of Vinyl-Asbestos Tiles

Sampling Data	Operations					
	Tile Laying		Tile Laying; Sanding; Vacuuming; Installation of Second Layer		Continuous Sanding	
Duration	30 min.		40 min.		23 min.	
Flow Rate	2 liters/min.		2 liters/min.		2 liters/min.	
Fibre concentration (/cc > 5)	Samplers		Samplers		Samplers	
	Fixed	Personal	Fixed	Personal	Fixed	Personal
	B.D.L.	B.D.L.	0.53	0.45	1.15	1.23
	—	—	0.51	0.56	1.12	1.30
Average	—		0.52	0.48	1.14	1.27
	B.D.L.		0.5		1.2	

B.D.L.: Below detectable limit of 0.05 /cc

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ORIGINAL
(Red)

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BAYLOR
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One Baylor Plaza
Houston, Texas 77030
Department of Pathology
(713) 799-4661

November 5, 1985

Att. John W. Newton III
Orgain, Bell & Tucker
470 Orleans Street
Beaumont, Texas 77701

Re: Ronnie Jane Rowles

Dear Att. Newton:

I have reviewed the medical records of Mr. Cecil Rowles, deceased, and the available medical literature regarding asbestos tile and possible associated asbestos disease. Mr. Rowles had an adenocarcinoma of the stomach with metastases to the omentum. A possible lesion of the left lower lobe of the lung was also suspected but never proven.

Medical literature concerning asbestos tile and asbestos associated disease is sketchy. Medical library searches through both Medline and Toxline revealed only one article, from 1971, in which one installer developed pleural plaques and another had a mesothelioma. I did locate a recent indirect reference from the Report Of The A.M.A. Council On Scientific Affairs: A Physicians Guide To Asbestos Related Diseases. (J.A.M.A. 1984; 252:2593-2597) which stated that "Non-friable asbestos products which do not release fibers into the air are not dangerous". In my opinion, asbestos tile is such a product.

For completion of this case I would please request that you mail for my review the slides of Mr. Rowles bronchial washings (DH-82-1047/7-28-82) and exploratory laparotomy for stomach cancer (DH-82-1113/8-6-82).

With best regards.

Sincerely,

S. Donald Greenberg, M.D.
Professor

Enclosures: - Article (1971)
- Consultation fee

SDG/ms

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